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Trial for Poisoning by Arsenic. Reported by WM. WATT, Student of Medicine at Starling Medical College, Columbus, Ohio.

About the first of May last, Peter Priest, defendant, in company with Joseph Saul, deceased, left Franklin county, moving west to Paulding county, Ohio. On the second day of their journey Saul was taken sick, but traveled on until he arrived at Kenton, Hardin county, where he died, and was buried by Priest. Priest then proceeded on to Paulding county. But suspicion being excited he was, in May last, arrested on a warrant issued by Benjamin Eglin, a justice of the peace in Kenton, and brought back to that place, and on the examination before the justice, was committed to jail to await the action of the grand jury. At the October term, 1860, of the court of common pleas, Judge Lawrence presiding, the grand jury presented a bill against him for murder in the first degree. And at the special term of the court, called for the purpose of trying this and other criminal cases, commencing December 3d, he was tried and acquitted.

The following report is condensed from a large amount of testimony, covering in all, over a hundred pages:

J. N. Absten, Prosecuting Attorney, C. H. Gatch, Esq., and W. H. West, Esq., for the State, and A. S. Ramsey, Esq., and James Kernan, Esq., for the defense.

A statement of the grounds relied upon by the prosecution, and which they expected to prove to make out their case, was presented

to the jnry by Mr. Gatch, and a statement of the defense by Mr. Ramsey. In Mr. Ramsey's statement he said they expected to show that the poison, if administered to the deceased at all, was administered by one of the witnesses for the State.

On motion of defendant's attorneys, the court ruled that the witnesses for the State should be examined separate and apart, excepting Prof. Wormley by consent of counsel.

Dr. Baughman examined.—I live in Franklin county, was acquainted with Joseph Saul there. This witness testified that he was present in June last, at the grave yard near Kenton, in Hardin county, where a body was exhumed, which he recognized by a large wart on the right side of the nose, to be that of Joseph Saul. The surface of the body was mortified, the skin discolored, the stomach and bowels were much inflamed, and there was a yellowish deposit on the liver and some portion of the bowels. Didn't know that the yellowish appearance was produced by arsenic. He said the deceased was a temperate man, weak minded, and of no business capacity. Priest told witness that he had agreed to keep Saul his lifetime for his property. At time of this conversation with Priest, Saul owned some ten acres of land, on which he lived at the time of his wife's death, and when Priest came to live with him.

Wm. Latty examined.—Testified that he had known Saul thirty-five years, that he recognized the body at the exhumation to be Saul's, that Saul's health had always been good. That he lived on 9¾ acres of land at the time his wife died, which was in February last, and that Priest came there to live about that time. Saul had other property besides the land, a wagon, two horses and harness, two or three cows, and some hogs, and household goods. Didn't know whether Saul was in debt.

Geo. Ridenour examined.—Testified to about the same as last witness.

Dr. A. W. Munson examined.—I was present when a body supposed to be Joseph Saul's, was exhumed. Dr. Hance, Coroner Church, and some others were present—it was about the 13th of June last. The coroner summoned me to go and hold a *post-mortem* examination of body supposed to be Joseph Saul's. An examination was had. I opened the body, took out the stomach, a portion of small intestines and a portion of the liver with the gall bladder attached. These parts had a peculiar, yellow appearance or hue about them, and were much inflamed. The effect of arsenic, or

arsenious acid, upon the human system, irritates the surface of the stomach, &c. If taken in small doses of one or two grains, it would produce death in one, two, or three days; if taken in larger doses it would do it in a few hours. If used in doses of one-tenth to one-twentieth of a grain, two or three times a day, it might not produce death at all, for arsenic is not an accumulative substance—these two last quantities are ordinary doses. I brought the stomach, intestines, liver and gall bladder, taken from the body, to town to my office, put them in a clean glass jar, sealed it up and labeled it, and delivered it to Coroner Church. The jar was put in a little box and addressed to Prof. Wormley, Columbus, Ohio. I recognize this jar and box as the ones spoken of.

Cross examined.—The inflammation was not greater than in cases where death results from inflammation of same degree, but there was a peculiar yellowish tint about the liver and down the intestines a piece. My opinion was that there was enough diseased action in stomach to produce death. Couldn't say there was evidence of foreign substance sufficient to cause death. It was my impression at time of exhumation, that there was something very peculiar about the case. The stomach and surrounding structure presented that peculiar yellowish appearance which would be evidenced by the action of sulphuret of arsenic upon animal tissue. This yellowish hue might have been the result of the *post-mortem* change. If arsenic acid had been present in the stomach at the time of death, the sulphuretted hydrogen gas which would be generated upon the decomposition of the structure, would act chemically upon the arsenious acid, producing sulphuret of arsenic which would impart a yellowish appearance to the surrounding structure.

Horace Church examined.—Testified to exhumation—identified the jar and box as those sent to Prof. Wormley by express.

Prof. T. G. Wormley examined.—(Box presented to witness to examine); on the 14th of last June, in afternoon, the express agent at Columbus, Ohio, delivered to me at my laboratory, a box which I here recognize. It had placed upon it a letter, which was tacked over two or four screws which secured the top of the box, in such manner that the box could not be opened without removing the letter. This letter was directed to my address, at Columbus, Ohio. I locked the box up in my laboratory, and it remained there till June 20th untouched. On the morning of that day I removed it to the laboratory of Starling Medical College, and there opened

it. I found it to contain saw dust, in which was packed a bottle about this size, and bearing a similar label. The bottle contained some animal matter and some fluid, which when taken out and examined proved to be a human stomach, to which was attached a portion of the small intestines; it also consisted of apparently a portion of human liver with gall bladder attached. I immediately prepared to submit these parts to analysis, using the stomach and portion of small intestines for one series of investigations, and the portion of liver and gall bladder for another.

I will now detail the analysis of the gall bladder and liver. In connection with the condition of accompanying organs, the liver was in a comparatively good state of preservation; it was tough, and cut with great difficulty with scissors; the gall bladder was whole, but had apparently been very much inflamed; it contained about two teaspoonsfull of thick fluid. These organs (the liver and gall bladder), were introduced into a large porcelain dish and there acted upon by distilled water, which was mixed with about one-sixth of its volume of hydrochloric acid; the mixture was then boiled for about three hours, with the gradual addition of small portions of chlorate of potash; by this time the whole mass became fluid—that is, the organs had all dissolved. After the mixture cooled it was filtered through muslin, and then through filtering paper; it was then allowed to stand about twenty-four hours, when it was again filtered through paper. The solution had then passed into it sulphuretted hydrogen for twenty-four hours; at the expiration of this period there was quite a marked deposit having a dark yellow color; this was filtered from the solution, and may have consisted of the sulphurets of arsenic, mercury, antimony, tin, or some other metals or organic matter. This residue was acted upon by a few ounces of pure ammonia, which would have dissolved the sulphuret of arsenic if present, and some organic matter: it might also have dissolved a small portion of sulphuret of antimony, if present. The other metallic sulphurets would not have been dissolved. This ammoniacal solution was then filtered to separate foreign matter; the solution was then evaporated to dryness, and then treated with strong nitric acid, and evaporated to dryness. The residue was then mixed with caustic soda, and carbonate of soda, and then heated and again nitric acid added, and again heated. It was then dissolved in a small quantity of

water and some concentrated sulphuric acid added, then evaporated to dryness and strongly heated. It now left a white residue. The organic matter being entirely destroyed the residue could now only consist of arsenic, antimony and salts of soda. This residue was acted upon by a small quantity of pure water, which could dissolve the salts of soda and the arsenic but not the antimony. Under these circumstances the arsenic would be in the form of arsenic acid. It was now filtered and a stream of sulphurous acid passed into the solution; this would change the arsenic into arsenious acid, which is the state most favorable for the application of the reagents. To a small portion of this solution hydrochloric acid was added and then a stream of sulphuretted hydrogen. This immediately produced a yellow precipitate, which could possibly have been nothing else but the sulphuret of arsenic, as tin and cadmium would have been separated by previous manipulations. I here present the liquid with its precipitate, that is, the portion or residue. This is sulphuret of arsenic. Reinsch's test was then applied. The other is known as the sulphuretted hydrogen test. A portion of the liquid was acidified with hydrochloric acid, and heated to boiling; then small slips of clean copper were introduced into the boiling liquid; these immediately became coated with a gray metallic covering; some of these I here present, with a slip of the copper not used, as a sample. This deposit, under the circumstances, could have been nothing else than metallic arsenic. There were twenty of those slips of copper thus coated; a few of them were introduced into a small tube and heated to redness; immediately a ring of crystals were volatilized or sublimed against the side of the tube in the form of crystals. I here present the tube with rings. This confirms beyond the possibility of doubt that the deposit upon the copper was metallic arsenic.

Marsh's test: A small portion of the original fluid was introduced into Marsh's apparatus, and the jet of gas lighted, which burnt with a white, smoky flame. A piece of cold porcelain was then depressed into the flame, and this immediately received a metallic deposit. I present two pieces of this porcelain here. These, under the circumstances could have been nothing else than arsenic; one of these spots was acted upon by the hydro-sulphate of ammonia, and it was not dissolved. Antimony, under the same circumstances, would have been dissolved. Another spot was acted upon by bleaching salt of lime—it was dissolved; antimony would not have dissolved.

I come to second part of Marsh's apparatus. The horizontal portion of the tube through which the gas was passing was heated to redness, and immediately there was a metallic deposit produced behind the point heated; this could have been due, under the circumstances, to no other substance than arsenic. 3d confirmation of Marsh: The gas was passed into a solution of nitrate of silver; it immediately produced a dark precipitate from which the liquid was filtered, and proved to contain arsenious acid. All these three reactions of Marsh's test prove beyond a doubt the presence of arsenic.

Ammonio sulphate of copper test: To a portion of the original fluid ammonio sulphate of copper was added, and it immediately produced a beautiful green precipitate, known by the name Scheel's green, being a compound of arsenic and copper. These are all the tests applied to the liver and gall bladder.

I will now detail the analysis of the stomach and small intestines. The two openings into the stomach were tied, when cutting the organ open the internal surface showed signs of extensive inflammation and disorganization, more especially that portion toward the small intestines, which was very much ulcerated, the mucous membrane being in some places entirely destroyed. This inflammation also extended into the small intestines. The stomach and small intestines were cut to pieces and treated in precisely the same manner as has been detailed in regard to the liver and gall bladder. The same test being applied to the resulting solution with the same results, indicating the presence of arsenic; but not in as large quantities as found in the liver. There was a fifth test applied to this solution. It was the ammonio nitrate of silver; this produced a yellow precipitate which indicated the presence of arsenic. These five tests constitute the principal tests relied upon by chemists for the deduction of arsenic. Each one under the conditions applied proved by itself the presence of arsenic. The ordinary mode of ingress of arsenic is through the mouth and throat into the stomach; it is taken up by the blood and carried to different portions of the body, and partly deposited in these portions. This is more especially true of the blood that passes through the liver. I cannot say how much arsenic was in these parts, from the fact that there was no estimate of the quantity, because it would have consumed so much of the material as to preclude the application of some of the important tests. The largest quantity was found in the liver; this would show that the arsenic had entered

the circulation, and was diffused through all the organs of the body, so that nothing short of an examination of the whole body would suffice to show the quantity of arsenic present. My profession is that of a chemist and physician; am not a practitioner of medicine. Have been a Professor of chemistry about nine years, in Capitol University, and part of that time in Starling Medical College. The symptoms of arsenic introduced into the stomach are pain in the stomach, vomiting and purging; vomiting is usually very continuous, the pain in stomach very severe extending down into the bowels. These are the more prominent symptoms of poisoning by arsenic, but there are individual cases where some one of them are not found. The appearances after death are more constant and uniform than the symptoms, the action of the poison being confined to the mucous membrane of the stomach; this is true though the arsenic was introduced into some other portion of the body than by the mouth. The action on the stomach is inflammation of the mucous membrane. This extends down into the bowels and intestines. Sometimes the stomach may have a yellowish appearance; this might be due to the production of yellow sulphuret of arsenic. All the re-agents and apparatus used in this examination were known to be absolutely pure beyond a doubt. The liver was in comparatively a good state of preservation, considering the time. Arsenic is a preservative of animal structures—used in preserving anatomical specimens. I presented the arsenic here exhibited as the production of the results of examination. It could not possibly have come from any other source than the stomach.

The amount found in the stomach, &c., would be unsafe to take as a dose—it would be less than an ordinary fatal dose—about three-fourths of the liquid obtained was used in the examination which gave these results. About one-fifth or tenth of the whole liver was used. Not able to state, from what arsenic I received, the whole amount of arsenic in the man, but the quantity found in liver was about equal to that found in the liver of an individual that I examined, whose stomach contained half an ounce of arsenic. This results from the fact that the arsenic can not get to the liver direct from the stomach. It is taken up by the blood and the liver gets more than its normal share—it passes off in various ways.

There was enough arsenic found in the tissue of this liver to indicate that enough arsenic had been introduced into the system to produce death. I was assisted, during this entire investigation, by

Wm. Watt of this place, who acts as my assistant. None of this material was ever in his possession. I retained it in my room locked up.

Cross examined.—From the quantity of arsenic found in this body, couldn't say how long it would take to produce death. The symptoms and effects seem to have little or no relation to the quantity taken when it exceeds about two grains. Authors cite a case in which 40 grains proved fatal in fifteen hours; in another case 480 grains did not prove fatal for seventeen hours, and in another over 500 grains did not prove fatal—it was thrown off. Mooted question, whether the habits of a man, will effect the result of the quantity of arsenic taken. If taken in quantities, in themselves not fatal, it would depend upon frequency of doses. Arsenic will not accumulate in the system; it is not an accumulating substance. A man may take repeated doses without producing poisonous effects. The symptoms of sickness will appear in from two to four hours—some cases immediately, others in eight or ten hours. In this case, I should expect the poisonous dose would show its effects in from a half to one hour. Death generally takes place in from twenty to thirty-six hours. My re-agents *might* have contained arsenic, but they were examined and tested, in this special case, and were pure, they contained no arsenic. Great care was taken that it could not be introduced extraneously. No one had access to them when I was not by. Arsenic is not a normal constituent of the body. It may be found in earths and grave yards. The first usual symptom is dryness in the throat, then sickness of stomach, with pain and the suddenness with which it comes on, &c. These symptoms may exist without arsenic, and arsenic may exist in the stomach without all these symptoms. It would be a rare case to find all these symptoms independent of the presence of arsenic. Arsenic is destitute of taste; I could never experience any—have taken as much as was safe to take. Chemists understand by arsenic an elementary substance, but the popular name of arsenic is given to arsenious acid. The arsenic upon the copper here is pure arsenic; the other is arsenious acid.

Dr. Wm. Watt examined.—Was present when the analysis was made by Prof. Wormley.

Dr. J. F. Hance examined.—Was present at the exhumation of body—recognized the body to be Joseph Saul's, whom I had seen

at Mrs. Higby's. First saw Saul on Thursday, May 3d last, about dusk. Met defendant in the yard—went in to see Saul. Asked defendant if they had a doctor. He said *he* had been after me, but could not find me, and got Dr. Steyer; that Dr. Steyer had left two or three powders, but that he had not given powders to Saul, because Saul was afraid to take them. Found Saul much prostrated and laboring under gastro-intestinal irritation. Told Priest I thought the old man would die before morning. Priest seemed to be alarmed. I prescribed a cathartic. Priest went with me to get the medicine—told him to get some herbs and put warm application to his bowels, and bathe him. Told Priest I would not go back till morning, but I went back about ten o'clock. There was no light in the house. Found Saul about the same. Didn't know whether the medicine was given or not. The application was not made to his bowels. Saw Saul again Friday morning—he seemed to be sinking, with much pain. Left more medicine. Saw him that afternoon again. Don't know whether the medicine had been given or not. Saw him again that night, and next morning when I saw him, he was dead. When I was there first, Priest said he had given old man some whiskey. There was something in a cup on the chair by the bed—don't know whether it was the medicine I ordered.

Dr. C. Steyer examined.—Was called to see a sick person at Mrs. Higby's in afternoon of May 3d. Told them he was in a dying condition. Left some powders. Told them to let me know next morning how he was. They said old man was sick on the road—that he had been vomiting and purging.

Henry Ridenour examined.—Live in Franklin county. Have known Saul since boyhood. Was present last spring when Saul sold his land. Saul left neighborhood soon after. He got $550 for his land. $200 went to Sterret, and $350 in notes to himself. Priest came back to Saul's soon after the land was sold.

[Several witnesses were here examined showing contradictory statements made by defendant as to the death of Joseph Saul, and the relation he sustained to him.]

John Rice examined.—Last time I saw Saul, was the day before he left Franklin county with the defendant for Paulding county. He was in good health. About the 15th of April last, Priest said to me—"If you get any more of Joe's property, you may take

him and keep him. I'll keep the balance." He also said he was to have Saul's property for keeping him.

Cross examined.—Old man ate dinner at my house that day with my family. Did not give him any sweet cakes.

Geo. Koontz examined.—Saul and Priest were at my house the Saturday evening befare they started for Paulding county. Priest traded me the notes for $350 for some horses. Priest said he was to have the notes for keeping the old man. They were the notes Saul got for his land. I saw Saul next morning about sun up—he was well, and was driving a team. Priest went along afterwards, driving the team he got of me.

Z. A. Connell examined.—In January last Priest and Saul came to my shop to have a note drawn up from Saul to Priest, for $208. Priest said it was for work done by his wife for Saul before she was married. While Saul was out, Priest said he had made a bargain with Saul to keep him his lifetime, for his personal property. He also said, at old Joe's death he would get the rest of the property, and he said, *that would not be long because he would fix him!*

Uriah Hone examined.—I saw old man Saul four or five days before he left. I had a conversation with Priest about old man's property. He said that he wanted to get it, that the old man would give it to him. I did not learn how he got it. Priest told me if he could get the old man out West, he would get his property without law or justice. I heard him say that he would be the death of the old man if he didn't turn him over the property.

John Saul examined.—The deceased was a brother of mine. He was 68 years old, and was always a temperate man.

Mahala Dix examined.—I lived with old man Saul when his wife died. Priest came to live there before I left. Priest said to me one day, he didn't think it would be any harm to kill Mr. Saul. I said it would be as much harm to kill him as any one else. He said he didn't think it would.

John Starrett examined.—Was acquainted with Joseph Saul since 1819. He was a temperate, weak minded man. I bought the ten acres of land for him, and paid for it out of his money. I think Priest was living in house with Saul when Saul sold the land.

John Huff examined.—Had conversation with Priest before he left for Paulding Co., about Saul's property. He told me if he didn't get away soon he couldn't take the old man at all. He said the old man was hardly fit to live amongst white folks; that he

was particular in his victuals, and was not satisfied with same as the rest of the family; that he wouldn't eat anything but cakes and pies, &c., and that he (Priest) couldn't afford to keep him. He said that it would be too bad for a nigger wench to 'tend to the old man under the circumstances that he was in. I told Peter he knew the old man's circumstances before, and that it would be too bad to leave the old man alone now. Peter started away with the old man in a couple days after this talk.

Several other witnesses were called, showing inconsistent statements of prisoner at the time of Saul's death.

Henry Brandorlf re-called.—When I went to bury Saul Priest said old man had some complaint (rupture), and needed to wear a truss. Said old man took sick on Monday. He said the old man wanted to get the bowels back, and when he got them back he felt a pain in them, and thought there must be something bursted inside.

Cross examined.—Priest didn't say that the old man said Peter had pushed them in wrong, but that there must have something bursted.

The State rested, and the witnesses for the defense were called.

In regard to the evidence on the part of the defense, suffice it to say, that the witnesses all testified that Priest had at all times used the old man in a proper manner, and had at no time administered him any drugs or medicine.

There was no evidence implicating any of the witnesses belonging to the State, as was spoken of in the commencement of the trial by the defense.

The jury after being charged retired; after the elapse of an hour they returned a verdict of not guilty.

Surgical Clinic of Starling Medical College. A Clinical Lecture on Necrosis, delivered Saturday, Nov. 24, by J. W. HAMILTON, Professor of Surgery.

The word mortification means the death of a part. In the use of the term, however, we ordinarily restrict its application to those cases of death in the soft parts in which a perceptible, or even considerable mass, dies simultaneously. Those cases in which death

occurs to soft parts in molecules, and such parts are thus disintegrated, we call ulceration. To the naked eye, and hence to ordinary observation, the products of ulceration do not consist of recognizable constituents of the ulcerating tissue. The recognition of these requires the most delicate chemical and microscopic tests. In mortification, on the other hand, death occurs on so extensive a scale, that the dead part is a perceptible, or even a large mass, and is called, especially when it is of moderate extent, a *slough*.

When death of bone occurs by molecules, the disease is apt to be peristent, gradually attacking successive portions, and is called *caries*. When death of bone occurs in a large mass, it probably occurs simultaneously in every part of that mass, and is called *necrosis*, while the dead part is called a *sequestrum*. It is thus seen that the words mortification, ulceration and slough, and the words necrosis, caries and sequestrum, as ordinarily used, have much the same import; the former being applied to soft, and the latter to hard parts. Necrosis, as compared with caries, is usually a disease of laminated or hard bone: while the latter is ordinarily situated in the cancellous or spongy parts of bones: hence, necrosis ordinarily occurs in the shaft, and by preference in the exterior portion of the shafts of long bones, as the tibia, femur, ulna, radius, and humerus; while caries is situated in the central parts, or near the articular extremities of long bones; or more frequently still in the flat and irregular bones, as those of the pelvis, spine, tarsus, corpus, scapula, &c.

When necrosis is confined to the superficial part of a bone it is called *external*; when it is confined to the interior of the bone, as to that part of a long bone which is next to the medullary canal, it is called *central;* when the entire shaft, for a greater or less part of its length, dies, it is called general *necrosis*. The same terms are used to designate sequestra.

Causes.—Occasionally bone dies from the application of very intense causes, in a direct way. Extreme heat, and possibly cold, may thus cause the death of all the tissues, including the bone of a part, as a hand or a foot. Again, in certain injuries, as a compound fracture, portions of bone may be nearly separated from all surrounding hard and soft parts, yet maintaining vascular connnections and a grade of vitality that are overcome by slight inflammation; the result is entire loss of vitality, necrosis, that is to say, within a short time after the reception of the injury. The amount

and kind of injury that bone will tolerate, is an interesting and important inquiry. Much depends on the mode and degree of implication of the periosteum and endosteum. Either of these investments may be destroyed, provided the other is spared, without very serious consequences. Both being separated, it could only be in very peculiar circumstances that the bone would survive. They maintain a peculiar and interesting supplementary relation, the one to the other. The periosteum being removed, the endosteum becomes more vascular, succulent, and thicker. The endosteum being separated the periosteum undergoes similar changes.

When, after injuries, the surface of bone is exposed it should be the object of daily and careful attention. As long as it is white and dry, and presents a sharp ring from the contact of a metallic probe, serious apprehensions for the vitality of the part may be entertained. Sooner or later, perhaps, the surface loses its white appearance, becoming brown, soft. Ceasing to ring from the application of the probe, it becomes sensitive, and bleeds from being touched. All serious apprehensions may now be laid aside; the periosteum is being reproduced, and the vitality of the bone will almost certainly be maintained.

Two years ago I was called in the night season to see a man living in the eastern part of this county, by the name of Randolph, who had just had a difficulty with his team. While his horses were running rapidly he was thrown with great violence upon a Macadamized road, and a wheel ran over his head, in such a way as to make a straight, clean separation of the scalp, on a line corresponding very perfectly with that on which we saw through the bones of the skull in separating the calvarium. It was separated for full three-fourths of its circumference, bareing the whole of the superior part of the skull most perfectly, leaving but very imperfect traces of the pericranium. The whole was covered with dirt, and the patient was intoxicated. After cleansing the parts, the scalp was replaced and secured by a few silver sutures. I did not see or hear from this man again for several months. At the end of that time I was informed by a physician of the vicinity, that, after a very tedious time, the particulars of which he could not give me, the patient recovered, and, as he believed, without either necrosis or caries.

The more common causes of necrosis are to be found in those circumstances and conditions which produce ostitis. I do not pro-

pose to enter into the enumeration of them. They are much the same as the causes of inflammations in the soft parts. The precedent condition of the necrosis is the ostitis. Considered, then, as a distinct disease, it is the result or event of a preceding disease—inflammation of bone.

A fact that can not be too distinctly perceived is this, that while necrosis, including all its incidents, is almost necessarily a chronic process, occupying months or years, yet the precedent inflammation may have been exceedingly acute; occupying but a very few days. I might give you a number of cases exemplifying this; let one suffice. The specimen I here adduce is a striking example of general necrosis, implicating several inches of the tibia. The boy from whom this was removed, was attacked with acute ostitis in February last. I first saw him in consultation two weeks after the attack. Several openings had already been made. Through these, it was ascertained that a large part of the tibia was already denuded and dead; and from the history of the case there was every reason to suppose the bone had been in that condition for several days.

It is well enough to bear in mind that, while the inflammation which results in necrosis usually originates in the bone, yet it sometimes originates in the surrounding soft parts, and extends to the periosteum and bone secondarily. This is well exemplified in the case V, which will be given hereafter.

At the time death occurs in the inflamed portion of bone, it is in a state of physical continuity with the living bone. Processes are, at once, instituted, for the double purpose of extruding the dead bone, and of providing a substitute. These processes are modified in adaptation to special circumstances. Suppose the necrosis is external, the process will be something as follows: ulceration is instituted on the line of junction of the dead and living bone, but of course *in* the latter. Thus the living, is gradually separated from the dead bone, at every point of contact, while sinuses in the soft parts admit of the discharge of the ulcerative debris. Granulation occurring at the bottom of the chasm, it has the double tendency to restore the symmetry of the original bone, and to assist, more or less, in extruding the sequestrum. The sequestrum is now lodged amongst the soft parts which are condensed more or less from inflammation. If it is smooth, not very deeply situated, and of moderate size, it will perhaps eventually be dis-

charged. Till it is discharged, or removed by operation, it will necessarily enact the part of an organic foreign body, producing more or less of inflammation, and suppuration, and maintaining the sinuous openings.

An external sequestrum, thus separated, has characteristics which enable you readily to recognize it. One surface, generally convex, is smooth; a perfect specimen of the exterior of the bone implicated. Its margins are rough, jagged, and more or less irregular. Its deeper aspect is either of the same character, or concave and more smooth; being in fact the medullary aspect of the bone implicated. The specimens before you abundantly illustrate these characters.

In central necrosis, the mode of separation is much the same as in the external variety. But here it is obvious that nature, at all events in a large proportion of cases, can do but little towards filling the chasm; for the reason that extrusion is so difficult and improbable. There nature's efforts are pretty much confined to enlarging, and condensing the diseased bone, thus providing for its strength. Some days since, you recollect, I operated in a case of central necrosis of the humerus, removing a sequestrum of five inches in length. The bone was greatly enlarged, and as hard as ivory; requiring the extensive use of the trephine. In such a case as that, and it is believed in many of these cases of central necrosis, spontaneous extrusion of the sequestrum would never occur, because of the small size and firmness of the opening through the surrounding original bone.

A central sequestrum presents characters appropriate to its class. In such you never have the smooth exterior of the original bone. Its external and lateral surfaces must be more or less rough, the result of the irregular mode of death and separation. The deeper surface is usually concave and more smooth, corresponding to the medullary surface of the bone. You have before you three good specimens.

In general necrosis we have a most interesting, important, and salutary conservative effort, adapted to the circumstance of the case, in a most peculiar manner. You have four specimens before you—one of the femur, one of the humerus, and two of the tibia. As illustrating the subject most satisfactorily, let us take this specimen of general necrosis of the tibia, already alluded to. Several inches of the tibia are dead, and are included in this sequestrum.

It is nearly eight inches long, but only implicates the entire diameter of the bone for a couple of inches. Here are several facts to be observed. It does not implicate the articular head of the bone; the epiphyseal head of the tibia, either not having been involved in the inflammation, or having been involved in a minor grade of it, survived. Observe, furthermore, that though several inches of the bone are dead and separated, yet there is still the semblance of a tibia left: a substitute bone is forming. This commenced to form, no doubt, as soon as the original bone perished; and as the latter must necessarily, for a length of time, remain in situ, the substitute bone is necessarily thrown around it. Hence, in the outset, it is greatly expanded, being large enough to invest a bone of normal size. You see, too, these several openings through the substitute bone, for the discharge of ulcerative debris. These are called *cloaca*.

The processes of separation and substitution, in such a case as this, go on pari passu, as a common fact: so that usually the slight amount of use the patient is able to make of the diseased limb, does not seriously endanger it. But occasionally substitution does not keep pace with separation; and then a very slight circumstance may cause fracture. This actually occurred in the case before you. You see the specimen is wired together at the point of fracture. The process of separation was already completed, and considerable progress was already made in the way of substitution; but a slight mis-use of the limb produced this fracture and rendered amputation necessary.

In this second case of general necrosis of the tibia, we have sequestra from traumatic necrosis, involving the whole diameter of the tibia for about an inch and a quarter. These sequestra were detached from the bone above and below in a compound fracture, and perished after a few weeks from the insufficiency of their connections with the soft parts. There was no opportunity for the formation of substitute bone. Nature met this emergency in a striking and peculiar manner. The fibula was unbroken. Gradually a kind of ligamentous union between the ends of the separated tibia occurred. Then the fibula commenced to curve out opposite to the chasm. As its length was reduced by its curving out, the fractured surfaces approached each other, and the ligamentous bond was abbreviated. I last examined the case two or three years after the accident. The fibula was then greatly curved, and the

two fragments of the tibia were in juxtaposition, with every prospect that they would soon be firmly united by bone. Partly from the strength of this union, and partly from enlargement of the fibula, the patient for months had already used his limb with but little more limping than belonged to the shortening present.

In the specimen of general necrosis of the femur, which I here present, the principal thing calling for special remark is the diminished length, and size of the bone. About this sequestrum, lodged near to its middle, it is expanded more or less. But everything else about it marks it as an imperfectly formed bone. It is several inches shorter than its fellow; and its head and neck are imperfect. The entire leg to which it belonged was too short, and the greater part of it was too small. The muscles about the thigh had undergone fatty degeneration. The necrosis occurred in very early life. I believe that when it is general, and occurs thus early, these effects, if the disease persist through a series of many years, are inevitable.

The history of the process of substitution varies with the circumstances of the case. In external necrosis it is little more, after extrusion is accomplished, than a process of granulation and ossification by which the chasm, large or small, is filled. After extrusion of central sequestra, so far as the mere chasm is concerned, the process is much the same. But much more is called for. The bone is greatly enlarged and condensed, and, at the same time, perforated by cloaca, while the medullary canal is in a peculiar condition. The cloaca remain open, it is believed, till repair of the chasm is effected, when, there being no occasion for further discharge of pus, they are supposed to close very much as the central chasm. The bone meanwhile diminishes in size; looses, to a greater or less extent, its ivory-like characters; and finally comes to present, as to its size and the proportion of its laminated and cancellous constituents, a more or less perfect imitation of its fellow of the opposite side. The activity, efficiency, and success of these modeling efforts, depend much, however, upon the age of the patient; the length of time the disease has been in existence, and the degree and kind of alteration the bone has undergone. The mode and degree of implication of the endosteum and medullary substance and canal, in this class of cases, are not very well understood.

After extrusion or removal of a general sequestrum, the model-

ing effort relates more particularly to the gradual diminution of the size, and the condensation of its substitute; the filling up of the interior cavity; the closure of the cloaca, and, in many cases, the restoration of the medullary canal. In this specimen of general necrosis of the femur, the sequestrum is in situ, the cloaca are still present and are very large; the substitute bone is condensed and strong; but we have demonstrated, by sawing out portions of it, as you see, that for a distance equal to about one-third the length of the bone, there is an entire absence of the medullary canal.

The *symptoms* of necrosis, so far as superficial appearances are concerned, are fairly exemplified in the two cases which we present to-day. In one of these cases we find several slight, cicatrix-like, teat-shaped elevations: these we call *papilla.* In or about each of these is the orifice of a small sinus. These sinuses have been discharging more or less of pus, in each of the cases, for a year or more. In both of the cases, furthermore, we have the history of a preceding ostitis.

Taking the first of these. This lad, Master B., from Guernsey county, is very intelligent for his years. A number of his family have died from ptisis, or other forms of scrofulous disease. He is cachectic, emaciated more or less, has a pulse of 90. For a length of time past he has had some difficulty about the right hip joint, which has left that articulation quite firmly anchylosed. You observe here, on the outer aspect of the right thigh, four inches below the trochanter major, five papilla. These mark the orifices of as many sinuses. Between these are abundant intercommunications, so that passing in several probes, I have no difficulty in bringing them in contact. Most of these sinuses are merely subcutaneous. One passes down deeply, however, and yet does not conduct me to a sequestrum. Now, accordingly, so far as this examination goes, I do not see the diagnosis clearly. This may be necrosis; it presents to superficial observation, as above intimated, the ordinary characters of that disease. Yet, taking the history, and all the circumstances of the case into consideration, it is most likely that we shall, from future examinations, arrive at the conclusion that it is a case of caries.

We now present you with another case. M———, aged 17, of Franklin county, has, you perceive, many of the indications of good health. He is in fair flesh; has a pulse of 75; eats and sleeps well, and is able to perform ordinary labor on a farm.

Six years ago he had a sudden and severe attack of inflammation in the deep structures about the lower end of the right thigh. After considerable suffering, pus was discharged, and the acute symptoms subsided. From this time there was one or more sinuses, evidently communicating with the bone. These, having shifted about from time to time, have left several cicatrices, as you see. At the present time two of them are open; one on the inner, and the other on the outer side of the thigh. Entering the probe in the inner one of them, after a good deal of search, I find a hard body; evidently loose; quite rough; of small size, and deeply situated in the popliteal space. This is undoubtedly a case of necrosis, the body which my probe touches being a sequestrum. I propose to dilate this sinus by introducing plugs of thoroughly dried slippery elm bark. This will occupy a couple of weeks, at the end of which time I hope to be able to remove this sequestrum, through the dilated sinus, by the use of forceps, and without a formidable operation, such as cutting down into the popliteal space in search of this sequestrum would be.

While both these cases, accordingly, on mere superficial examination, seem to present the characters of necrosis, one only we suppose to be of this character. In a few words, then, the more obvious and demonstrable symptoms of necrosis are the presence of papilla, cicatrices, sinuses, more or less chronic, with purulent discharge. Using the probe the sequestrum is detected. If by its use we find a bare smooth surface of any extent, we make out that it is either general or external necrosis. If it is jagged and rough in every part, while the living bone seems expanded or enlarged, and the cloaca are very constricted and hard; and if, in connection with this, we learn that the primary symptoms were excruciating and very tedious, we will do well to calculate upon the difficulties incident to central necrosis. In the use of the probe we aim not only to make a general diagnosis, but we resort to this method of ascertaining whether the bone is in a condition to be removed or not. If, getting our probe in contact with the sequestrum, we are able to move it, we have, of course, settled in our minds that the process of separation is complete. For this purpose it is frequently found best to use more than one probe. Using two we press alternately upon them, and thus succeed in demonstrating the mobility of the dead bone. If probes have not the requisite strength, as is frequently the fact, let directors, sounds, or some other strong metallic instrument be substituted.

The question of operation. I have time after time received applications to operate for necrosis, where no one supposed that the sequestrum was yet separated. In a trial for mal-practice I once saw a handful of bone exhibited by the surgeon who undertook to swear the case through, consisting of a score or two of fragments, claimed to have been scooped, bitten, or gouged off the ends of a broken tibia, as dead bone, in connection with the treatment of a compound fracture. I mention these things for the purpose of preparing your minds for a distinct understanding of a practical point. *The fact that bone is dead is not a sufficient reason for your gouging into it.* It should not only *be dead*, but *separated from the living bone*, before you interfere with it. The reason for this practice, universally sanctioned by competent authorities, is sufficiently obvious. When a portion of a bone dies it is in a state of physical continuity with the living bone. There is, of course, a boundary between the dead and living parts; but we have no means of recognizing it; hence should the operation be undertaken before separation has occurred, about as likely as otherwise, the surgeon would remove much that was *not* dead, and leave more or less that *was* dead. Hence, I repeat the precept, that before proceeding to operation, the bone should not only be dead, but *it should be separated from the living bone.*

The principal means of ascertaining whether separation has occurred, consists in the use of the probe. We are convinced that separation is complete, because, by the use of the probe we are enabled to shake or move it. Nothing else is entirely reliable; but the history of the case will aid us.. If the attack of ostitis occurred very recently, and the amount of dead bone is considerable, these circumstances afford strong presumptive evidence that it is not detached. If, on the other hand, the case has been in a chronic condition for years, it is pretty certain that the dead bone is separated, whether we can move it or not. I do not propose to pursue the details of this subject further, or describe particularly the mode of operating. I only wish in conclusion to state that, performed only in proper cases, the operation, although it is occasionally sufficiently difficult, is yet a most promising one. Illustrating various features of the subject, I add the following cases:

Case I. In July, 1852, Mr. B., a farmer of about 45 years, a man of large business, in the enjoyment of good general health, consulted me on account of tenderness about the trochanter major

of the right side, which had been present about a week and a half. I found the parts indurated, with deep-seated tenderness, and recommended rest, and the local use of iodine. Four weeks subsequently he called again.: Informed me that on account of a scarcity of help he had not been able to lie by, but had done ordinary labor in harvesting. An abscess had already pointed, and been opened and a small sequestrum was discharged spontaneously, followed at once by complete recovery.

In this case the ostitis, death, separation, extrusion and closure of sinuses occupied less than six weeks.

Strongly contrasted with this we give—

Case II. Mr. G., aged 19, in good general health, a farm laborer, presented himself for treatment in the winter of 1857–8. From childhood he had been in a great degree disabled on account of what was called white swelling, at the lower end of the femur. I found two sinuses, and using the probe detected dead bone in the situation of the external condyloid ridge of the femur. Making a liberal opening, I found and removed two small sequestra, which I here present. They were held firmly in situ by a slender bridge of substitute bone. In a couple of months he was perfectly well, and so continues at the present time.

Case III. In June, 1854, Mr. B., an intelligent young man of Champaign county, aged 19, was sent to me for an operation by Dr. I. W. Goddard, of Westville. A few months previously, after exercising himself violently, he thoughtlessly exposed himself by standing for a length of time, in a strong wind, with his coat off. Following the exposure was severe inflammation about the left scapula. Abundant purulent discharge, and the formation of numerous sinuses followed. One of these opened at the lower end of the spine of the scapula; another at the root, and still another at the tip of the acromion process; another on the anterior aspect of the humerus just below the lower margin of the insertion of pectoralis major; another at the lower edge of this muscle where it quits the chest to constitute the anterior boundary of the axillary space, and yet another just below the middle of the clavicle.

Examining these sinuses most diligently I failed to find sequestra. By injecting fluids into them, however, I succeeded in demonstrating that all communicated with the one which opened at the root of the acromion. The case presenting the usual history of a case of necrosis, and there being no satisfactory explanation of the

symptoms, except on the supposition of its presence, I determined on an operation for the removal of sequestra.

Making a free incision over the length of the spine of the scapula, and about half the acromion, and dividing the fibres of the trapezius and deltoid muscles for a limited extent, the sinuses were found to have a common convergence to a considerable cavity which existed at quite a depth, just behind the middle of the clavicle. In this were found three small sequestra. These floating loosely in the cavity were removed without difficulty. This case made a complete recovery.

Case IV. Mr. M., a very intelligent gentleman, aged 18, a resident of Madison county, became my patient about a year since. He is of a healthy family, and with the exception of his being pale, presented every appearance of being in the enjoyment of good health. When a small boy, after pain, fever, &c., sinuses formed at various points along pretty much the entire length of the right femur. When he presented himself there was a single very slight one, that could not be traced to any depth, in the upper part of the thigh. A number had closed, leaving cicatrices at various points along the limb. Communicating with the popliteal space just above the knee joint were two sinuses discharging profusely. The popliteal artery passed between them. At the bottom of these sinuses extensive surfaces of dead bone, partly rough, and partly smooth, were readily detected. The young man was disqualified for his place in society by his lameness, and the profuse discharges. After careful consideration of the anatomical relations of the sequestra, I determined to perform an operation by cutting down upon, and in the course of the external ham string, so as to drop into the lower and external of the two sinuses. This being effected, I separated the tissues along the external boundary of the popliteal space, using the edge or handle of the knife, and occcasionally the finger, for that purpose. A liberal opening being thus made, as far from the knee joint as possible, the sequestra were finally found, firmly imbedded beneath a strong bridge of substitute bone. Shelving this off somewhat by the bone pliers, the dead bone was seized with a pair of very strong forceps, and after a protracted rocking effort was finally removed. This was followed by the removal of two smaller sequestra, which left the cavity smooth. The first of these sequestra you observe is of very large size,

equal to the outline of a large thumb including its metacarpal portion. This operation was followed by a perfect cure.

Case V. Miss S., aged 18, of Champaign county, was operated on in Nov., 1859. Twelve years previously, in passing through weeds and grass, she was conscious of receiving a slight wound over the middle third of the fibula. Within a very few minutes she became very sick and faint. Extreme prostration followed, after which, reaction occurring, great swelling and inflammation occurred in the vicinity of the wound. A grave train of local and constitutional incidents followed, which rendered it quite certain that the wound was inflicted by a poisonous serpent. Surviving, there were left along the course of the fibula several sinuses. These persisted, changing more or less from time to time for 11 years. On cutting down I found a sequestrum of the shape and size of a very large darning needle. This was readily removed. The cure was prompt and perfect.

American and Foreign Intelligence.

"From the St. Louis Medical Journal."

[The following extract from Hugh Miller's "*Testimony of the Rocks*," cannot fail to interest the reader. It is worthy of being committed to memory. L.]

The Testimony of the Rocks. By Hugh H. Miller.

"The different races of mankind," says Humbolt, employing, let me remark, the language of the distinguished German naturalist Müller, to give expression to the view which he himself adopts, "the different races of mankind are not different species of a genus, but forms of one sole species." "The human species," says Cuvier, "appears to be single." "When we compare," says Pritchard, "all the facts and observations which have been heretofore fully established as to the specific instincts and separate psychical endowments of all the distinct tribes of sentient beings in the universe, we are entitled to draw confidently the conclusion, that all human races are of one species and one family." "God hath made of one blood," said the Apostle Paul, in addressing himself to the *élite* of Athens, "all nations, for to dwell on the face of all the earth." Such, on this special head, is the testimony of Reve-

lation, and such the conclusion of our highest scientific authorities. The question has, indeed, been raised in these latter times, whether each species of animals may not have been originally created, not by single pairs or in single centres, but by several pairs and in several centres, and, of course, the human species among the rest? And the *query*,—for in reality it amounts to nothing more,—has been favorably entertained on the other side of the Atlantic. On purely scientific grounds it is of course difficult to prove a negative in the case, just as it would be difficult to prove a negative were the question to be, whether the planet Venus was not composed of quartz rock, or the planet Mars of Old Red Sandstone? But the portion of the problem really solvable by science,—the identity of the human race under all its conditions, and in all its varieties, science *has* solved. It has determined that all the various tribes of man are but forms of a single species. And in the definition of species,—waving the American *doubt* until it shall at least become something more,—I am content to follow the higher authorities. "We unite," says M. de Candolle, "under the designation of a *species*, all those individuals that mutually bear to each other so close a resemblance as to allow of our supposing that they may have proceeded originally from a single being or a single pair."—"A *species*," says Buffon, "is a constant succession of individuals similar to and capable of reproducing each other." "A *species*," says Cuvier, "is a succession of individuals which reproduces and perpetuates itself."

Now all history and all tradition, so far as they throw light on the question at all, agree in showing that the centre in which the human species originated must have been somewhere in the temperate regions of the East, not far distant from the Caucasian group of mountains. All the old seats of civilization—that of Nineveh, Babylon, Palestine, Egypt, and Greece—are spread out around this centre. And it is certainly a circumstance worthy of notice, and surely not without bearing on the *physical* condition of primeval humanity, that in this centre we find a variety of the species which naturalists of the highest standing regard as fundamentally typical of the highest races of the globe. "The natives of the Caucasus," says Cuvier, "are even now considered as the handsomest on earth." And wherever man has, if I may so speak, *fallen* least,—wherever he has retained, at least intellectually, the Divine image,—this Caucasian type of feature and figure, with, of course, certain national modifications, he also retains. It was developed in a remarkable degree among the old Greeks, as may be seen from the busts of some of their handsomer men; and still more remarkably in their *beau ideal* of beauty, as exemplified in the statutes of their gods. We see it also, though dashed with a shade of severity, in the strong forms and stern features of Monarchs that reigned of old in Nineveh and Babylon, as brought to light in their impressive effigies by the excavations of Rawlinson and Layard. And further, though somewhat modified by the African dash, we detect it in the colossal statutes of Egypt. Nor, as

shown by Egyptian paintings still fresh in color and outline, was it less traceable in the ancient Jewish countenance and figure. It is still palpable, too, amid all the minor peculiarities of national physiognomy, in the various peoples of Europe. We may see it in our own country, though, as Sir Walter Scott truly tells us,—

> "The rugged form may mark the mountain band,
> And harsher features and a mien more grave."

It walks, however, the boards of our Parliament House here in a very respectable type of Caucasian man; and all agree that nowhere else in modern Europe is it to be found more true to its original contour than among the high-bred aristocracy of England, especially among the female members of the class. Looking, then, at the entire evidence,—at the admitted fact that the Circassians of the present day are an eminently handsome people,—that the old Greeks, Ninevites, Egyptians, Jews, Romans, and with these all the modern nations of Europe, are but the varieties of the central race that have retained in greatest perfection the original traits: I do not see how we are to avoid the conclusion that this Caucasian type was the type of Adamic man. Adam, the father of mankind, was no squalid savage of doubtful humanity, but a noble specimen of man; and Eve a soft Circassian beauty, but exquisitely lovely beyond the lot of fallen humanity.

> "The loveliest pair
> That ever yet in love's embraces met:
> Adam, the goodliest man of men since born
> His sons; the fairest of her daughters Eve."

I know not whether I should add what follows. It has been said that Luke, the "beloved physician," was also a painter. It has been said that traditionary, time-honored form, which we at once recognize in the pictures of the old masters as that of the Saviour of mankind, he in reality bore when he walked this earth in the flesh. I know not what degree of probability attaches to the belief. I know not whether the traditionary form be in reality the true one. This, however, I know, that *if* such was the form which the adorable Redeemer assumed when he took to himself a real body and a reasonable soul, the second Adam, like the first, exemplified, when upon earth, the perfect type of Caucasian man.

Let me next remark, that the further we remove from the original centre of the race, the more degraded and sunk do we find the several varieties of humanity. We must set wholly aside, in our survey, the disturbing element of modern emigration. Caucasian man has been pressing outwards. In the backwoods of America, in Southern Africa, in Australia, and in the Polynesian islands, the old Adamic type has been asserting its superiority, and annihilating before it the degraded races. But taking into account merely the aboriginal varieties, it seems to be a general rule, that the further we remove in any direction from the Adamic centre, the more animalized and sunk do we find the various tribes or races.

Contrary to the conceptions of the assertors of the development hypothesis, we ascertain, as we proceed outwards, that the course is not one of progression from the low to the high, but of descent from the high to the low. Passing northwards, we meet, where the lichen-covered land projects into the frozen ocean, with the diminutive Laps, squat, ungraceful, with their flat features surmounted by pyramidal skulls of small capacity, and, as a race, unfitted for the arts either of peace or war. We meet also with the timid Namollas, with noses so flat as to be scarce visible in the women and children of the race; and with the swarthy Kamtschatkans, with their broad faces, protuberant bellies, and thin, ill-formed legs. Passing southwards, we come to the negro tribes, with their sooty skins, broad noses, thick lips, projecting jawbones, and partially-webbed fingers. And then we find ourselves among the squalid Hottentots, repulsively ugly, and begrimed with filth; or the still more miserable Bushmen. Passing eastwards, after taking leave of the Persian and Indian branches of the Caucasian race, we meet with the squat Mongolian, with his high cheek bones set on a broad face, and his compressed, unintellectual, pig-like eyes; or encounter, in the Indian Archipelago or the Australian interior, the pitably low Alforian races, with their narrow, retreating foreheads, slim, feeble limbs, and baboon-like faces. Or, finally, passing westward, we find the large-jawed, copper-colored Indians of the New World, vigorous in some of the northern tribes as animals, though feeble as men, but gradually sinking in southern America, as among the wild Caribs or spotted Araucans; till at the extremity of the continent we find, naked and shivering among their snows, the hideous, small-eyed, small-limbed, flat-headed Fuegians, perhaps the most wretched of human creatures. And all these varieties of the species, in which we find humanity "fallen," according to the poet, "into disgrace," are varieties that have lapsed from the original Caucasian type. They are all the descendants of man as God created him; but they do not exemplify man as God created him. They do not represent, save in hideous caricature, the glorious creature moulded of old by the hand of the Divine Worker. They are fallen,—degraded; many of them, as races, hopelessly lost. For all experience serves to show, that when a tribe of men falls beneath a certain level, it can not come into competition with civilized man, pressing outwards from his old centers to possess the earth, without becoming extinct before him. Sunk beneath a certain level, as in the forests of America, in Van Dieman's Land, in New South Wales, and among the Bushmen of the Cape, the experience of more than a hundred years demonstrates that its destiny is extinction,—not restoration. Individuals may be recovered by the labors of some zealous missionary; but it is the fate of the race, after a few generations, to disappear. It has fallen too hopelessly low to be restored. There remain curious traces in the New World of these perished tribes. The Bible, translated into an old Indian language, from which the devoted David Brainerd taught so successfully a nation of Red

Men, still exists; but it speaks in a dead tongue, which no one can now understand; for the nation to whom he preached has become extinct. And Humboldt tells us, in referring to a perished tribe of South America, that there lived in 1806, when he visited their country, an old parrot in Maypures, which could not be understood, because, as the natives informed him, it spoke the language of the Atures. Tribes of the aborigines of Australia have wholly disappeared during the present generation; and I remember seeing it stated in a newspaper paragraph, which appeared a few years ago, that the last male survivor of the natives of Tasmania was at that time in the latter stages of consumption.

But if man, in at least the more degraded varieties of the race, be so palpably *not* what the Creator originally made him, by whom, then, was he made the poor lost creature which in these races we find him to be? He was made what he is, I reply, by man himself; and this, in many instances, by a process which we may see every day taking place among ourselves in individuals and families, though happily, not in races. Man's nature again,—to employ the condensed statement of the poet,—has been bound fast in *fate, but his will has been left free.* He is free either to resign himself to the indolence and self-indulgence so natural to the species; or, "spurning delights, to live laborious days;" free either to sink into ignorant sloth, dependent uselessness, and self-induced imbecility, bodily and mental, or to assert by honest labor a noble independence,—to seek after knowledge as for hidden treasures, and, in the search, to sharpen his faculties and invigorate his mind. And while we see around us some men addressing themselves with stout, brave hearts to what Carlyle terms, with homely vigor, their "heavy job of work," and, by denying themselves many an insidious indulgence, doing it effectually and well, and rearing up well taught families in usefulness and comfort, to be the stay of the future, we see other men yielding to the ignoble solicitations of appetite or of indolence, and becoming worse than useless themselves, and the parents of ignorant, immoral, and worse than useless families. The wandering vagrants of Great Britain at the present time have been estimated at from fifteen to twenty thousand souls; the hereditary paupers of England,—a vastly more numerous class,—have become, in a considerable degree, a sect distinct from the general community; and in all our large towns there are certain per centages of the population,—unhappily ever increasing per centages,—that, darkened in mind and embruted in sentiment, are widely recognized as emphatically the dangerous classes of the community. And let us remember that we are witnessing in these instances no new thing in the history of the species: every period since that of the vagabond Cain has had its waifs and stragglers, who fell behind in the general march. In circumstances such as obtained in the earlier ages of the human family, all the existing nomades and paupers of our country would have passed into distinct races of men. For in the course of a few generations their forms and complexions would begin to tell of the self-induced de-

gradation that had taken place in their minds; and in a few ages more they would have become permanent varieties of the species. There are cases in which not more than from two to three centuries have been found sufficient thoroughly to alter the original physiognomy of a race. "On the plantation of Ulster in 1611, and afterwards, on the success of the British against the rebels in 1641 and 1689," says a shrewd writer of the present day, himself an Irishman, "great multitudes of the native Irish were driven from Armagh and the south of Down, into the mountainous tract extending from the Barony of Fleurs eastward to the sea; on the other side of the kingdom the same race were exposed to the worst effects of hunger and ignorance, the two great brutalizers of the human race. The descendants of these exiles are now distinguished physically by great degradation. They are remarkable for open, projecting mouths, with prominent teeth and exposed gums; and their advancing cheek bones and depressed noses bear barbarism on their very front. In Sligo and northern Mayo, the consequences of the two centuries of degradation and hardship exhibit themselves in the whole physical condition of the people, affecting not only the features, but the frame. Five feet two inches on an average,—pot-bellied, bow-legged, abortively featured, their clothing a wisp of rags,—these spectres of a people that were once well-grown, able-bodied, and comely, stalk abroad into the daylight of civilization, the annual apparition of Irish ugliness and Irish want."

Such is man as man himself has made him,—not man as he came from the hand of the Creator. In many instances the degradation has been voluntary; in others, it has been forced upon families and races by the iron hand of oppression; in almost all,—whether self-chosen by the parents or imposed upon them,—the children and the children's children have, as a matter of inevitable necessity, been born to it. For, whatever we may think of the Scriptural doctrine on this special head, it is a fact broad and palpable in the economy of nature, that parents *do* occupy a federal position: and that the lapsed progenitors, when cut off from civilization and all external interference of a missionary character, become the founders of a lapsed race. The iniquities of the parents are visited upon the children. And in all such instances it is *man* left to the freedom of his own will that is the deteriorator of man. The doctrine of the Fall, in its purely theologic aspect, is a doctrine which must be apprehended by faith; but it is at least something to find that the analogies of science, instead of running counter to it, run in exactly the same line. It is one of the inevitable consequences of that nature of man which the Creator "bound fast in fate," while he left free his will, that the free will of the parent should become the destiny of the child.

Lectures on Experimental Pathology and Operative Physiology delivered at the College of France, during the Winter Session 1859–60, by M. CLAUDE BERNARD, Member of the French Institute; Professor of General Physiology at the Faculty of Sciences.

LECTURE XXIII.—EXPERIMENTAL PATHOLOGY—ON THE ANALOGY BETWEEN MORBID CAUSES AND POISONS.

GENTLEMEN—From the earliest period to which our knowledge extends, it has been a favorite object with medical philosophers to connect, as far as possible, the symptoms exhibited by patients during life, with the morbid alterations discovered in the various organs after death. In many instances these laudable efforts have been fully crowned with success; and the light thrown upon this branch of the medical sciences, since a commencement of the present century, has, in no slight degree contributed to the progress of the healing art. But, although in the majority of cases, the results of post-mortem examinations enable us to ascertain the direct and immediate causes of death, our expectations are too often deceived in this respect; the most attentive survey leads sometimes, as you are well aware, to no satisfactory conclusion whatever; all the organs appear as sound as in the healthy state, and it becomes altogether impossible to account for the cessation of life. On the other hand, how frequently are extensive lesions discovered within the body after death, the existence of which had been revealed by no corresponding symptoms! All physicians whose attention has been devoted to the diseases of old age, have met with numerous instances of this kind. I remember myself having, more than once, witnessed similar cases, at the time when I was attached as an *interne* to the Salpétrière (a). On one occasion I discovered a large tumour in the immediate vicinity of the pons varolii, the presence of which had not been attended with symptoms of paralysis, notwithstanding the pressure exerted on so important a portion of the brain.

Morbid anatomy must not, therefore be codsidered as a key to all the phenomena of disease: viewed by itself, it is utterly incapable of pointing out the hidden sources from which they spring; and mere anatomical investigations, however minute, are altogether insufficient in this respect. In making experiments upon the abdominal nerves, I have frequently seen animals die before any symptoms of inflammation had made their appearance; and Chossat's interesting researches on the effects of starvation equally afford instances of sudden death under similar circumstances. Thus, in animals entirely deprived of food, a given period usually elapses before life is altogether extinct; but when the process is already

(a) An Asylum for aged women, which contains upwards of five thousand inmates

far advanced, the slightest shock is sufficient to destroy life at once. A pigeon, which has been kept fasting for a considerable length of time, falls down, and instantaneously dies, when its claws are nipped; while, if not interfered with, the animal's life is usually prolonged for several days. It would, of course, be quite unnecessary to state, that in making the autopsy, no alterations besides those which ordinarily result from inanition are met with. In what manner, therefore, is death to be accounted for in such cases? Chossat attributes it to syncope; an opinion which our own experiments tend to corroborate. In fact, the heart's motion (as we have elsewhere stated) is momentarily arrested when a sensitive nerve is painfully excited; it would, therefore, be quite possible that in animals reduced to a state of great debility, a slight sensation of pain should immediately produce death. There also exist in such cases, other conditions which the mere anatomist is unable to appreciate. The temperature of the medium in which animals are kept during the process of starvation, has a considerable influence upon the duration of life: for cold accelerates, and warmth opposes the destructive process; and, in experiments in which circulation has been arrested in some of the larger vessels we also find this to be the case. When the vena porta, for instance, has been tied, the animal is soon deprived of its natural heat, and rapidly dies, if the temperature of the body is not maintained in a proper state by artificial means; but when this precaution has been taken, the results of the operation seldom prove fatal.

It would not be difficult to accumulate a still larger amount of evidence upon this point, but you have no doubt been fully convinced, by the facts to which we have just drawn your attention, that nothing beyond the mere mechanical causes of death is explained by morbid anatomy, and that other and more comprehensive modes of investigation are indispensable to those who wish to acquire a deeper insight into the secrets of living nature. To fill up this void as far as possible, is the chief purpose of our present researches, but in pursuing this object we must never loose sight of the example left us by those illustrious observers to whom the biological sciences are indebted for all the progress they have accomplished in moderations. The concatenation of natural phenomena, their mode of precession, and the laws according to which they are produced, must alone become the subject of our studies; as to the intimate nature of things it lies entirely beyond the reach of human knowledge. It would not, for instance be sufficient to state that certain poisons act upon the nerves, others upon the muscles or the blood; but when the peculiar mode of action of such bodies upon our tissues and the mechanism through which life is extinguished have been thoroughly ascertained in each case, we can go no further; to explain the mysterious properties which enable a given poison to disorganize a given tissue, is not within the power of science. You remember, no doubt, the effects produced by oxyde of carbon upon the blood-globules, you are aware that a chemical combination takes place between these two bodies which opposes

the absorption of oxygen, and brings on a peculiar kind of asphyxia; the mechanical process of respiration still continues but is no longer attended with the revivication of the blood in the lungs. Here, then, we have a satisfactory explanation of the deleterious influence exerted by this substance; but if we were asked *why* the combination takes place, we should of course be unable to answer the question. The affinity of oxyde of carbon for the blood-cells is evidently superior to that of oxygen, but the primitive reason of this difference lies beyond the limits of our scientific knowledge.

The physiologist must therefore be contented with tracing back the effects produced by disease to some primitive cause, the discovery of which puts an end to his inquiries; and the influence exerted by toxic agents upon the organs of the living body will in this respect be found to exhibit a striking analogy with that of morbid causes. In what manner is the agency of poisons to be conceived? Ought their effects to be viewed in the light of chemical combinations, which supercede the physiological changes that support life? Such is in fact the explanation we have adopted, as regards the action exerted by oxyde of carbon upon the blood-globules; but would it be proper to extend these views to all the different poisons with which we are at present acquainted? Are we to suppose that woorara is chemically combined with the substance itself of the motor nerves, so as to impede the progress of the nervous fluid? A similar hypothesis would evidently not be in accordance with facts: we find that when life has been protracted by artificial means, the deleterious agent is gradually expelled from the economy: now, if a permanent impression had been produced upon the nerves, we should not find this to be the case.

It therefore appears that toxic agents exert different modes of action upon the fundamental conditions of life: in some instances they seem to be chemically combined with the histological elements of the disorganized tissues: such, according to Liebig is the case with respect to metallic salts. Other poisons on the contrary, circulate freely with the blood, and destroy for the time being its vital properties: now, the blood, as we have already stated is the common medium in which all the tissues exist: if therefore a deep change occurs in its physiological properties, both muscles, glands, nerves and other organs, are liable to experience a total derangement in their usual functions. The well known experiments of Bichat upon the injection of venous blood into the arteries, afford a striking example of this; and it can scarcely be questioned that such is the mode of action exerted by woorara, strychnia, and all the other substances which are speedily eliminated from the body, when death has not been almost immediately the result of their presence.

It would therefore appear, that poisons might, in this respect, be divided into two principal classes: some of them give rise to stable and definite chemical compounds, are retained within the economy, and may be discovered by the process of analysis after death: others are speedily expelled from the body, and leave no visible

marks of their passage. In the first case permanent and incurable effects are produced: in the second a transitory action is alone exerted, and when the patient recovers, the noxious principle has entirely disappeared. In short, gentlemen, we find in all respects, a perfect resemblance between the effects of poison, and those of ordinary diseases: and in our next lecture we shall endeavor to complete the parallel between them.

LECTURE XXIV.—OPERATIVE PHYSIOLOGY—ON THE PANCREATIC SECRETION.

GENTLEMEN—In the preceding lectures we have successively examined the principal methods employed for the purpose of obtaining the produce of certain glands which play a prominent part in the digestive functions. We have shown you how to collect saliva, the gastric juice, and the pharyngeal secretion, in a state of perfect purity. We shall now descend into the lower portion of the alimentary canal, in order to pursue our investigations into this branch of physiology.

Immediately below the pylorus, several important liquids are poured into the duodenum by various glands, some of which are placed on the outer side of the intestine, while others lie imbedded in its walls. We allude to bile, pancreatic juice, and the liquid secreted by Brunner's glands. We shall direct your attention today to the pancreatic secretion; and we evidently could not have chosen a more interesting subject to conclude these lectures for the present session.

The various methods of collecting the intestinal fluids, although resting upon some general principles, require certain modifications in the case of each gland. There exists as you are well aware, a vast difference between these various organs: the pancreas, for instance, is far from resembling the salivary apparatus, to which it has frequently been assimilated. As far as structure is concerned the comparison is just; but with respect to their physiological properties it is absolutely erroneous; and although the contrast is sensible enough in the healthy state, yet the effects of disease bring it into a much stronger light. Local disorders, in fact, almost exclusively enjoy the property of disturbing the salivary secretion, which remains unimpaired during the course of other affections. It is, therefore, comparatively easy to collect this fluid in large quantities without modifying its normal characteristics; for the slight inflammation which sometimes results from the experiment, is in this respect altogether harmless. Far different is the sensibility exhibited by the pancreatic gland: the general perturbations of the economy exert a powerful influence upon its functions, and the least degree of inflammation immediately perverts the properties of the fluid which it produces; when, therefore, peritonitis arises in consequence of the operation, the experiment cannot be pursued with any hope of success, no reliance whatever can be placed upon the results obtained, a healthy secretion being no longer placed at

our disposal; and if the utmost care is not taken to avoid this unfortunate complication, which too often attends operations performed upon the abdominal viscera, the properties of the pancreatic secretion cannot be rationally ascertained.

The absolute necessity of establishing definite rules for the performance of this delicate operation is evident, for we cannot expect the results obtained by different observers to agree, unless the conditions in which the experiment takes place are identically the same in every case. Let us, therefore, consider the anatomical disposition of the pancreatic ducts, in man as well as in the lower animals; after taking this preliminary step we shall endeavor to lay down, as clearly as possible, the requisite directions.

The pancreas in the human species is provided with two excretory ducts, the first of which falls into the ductus choledochus; while the second opens separately into the duodenum. Here is the stomach of a criminal, preserved in alcohol; the organ having, therefore, belonged to a healthy subject, must be supposed to exhibit the normal state. Two little silver probes being introduced from without into the pancreatic ducts, you will see them appear on the inner surface of the intestine and their direction will be easily ascertained. The extremity of the probe passes into the duodenum, as you perceive, just below the pylorus. One of the ducts is provided with a distinct apperture, while the other falls into the biliary canal. In this preparation both ducts happen to be of an equal size, but in the majority of cases that which is anastomosed with the ductus choledochus is a little larger than the other. And, lastly, a direct anastomosis exists between the two ducts; it is fully exhibited (as you see) in this preparation. This disposition is worthy of notice, since, after tying one of the two excretory canals the pancreatic secretion flows through the other into the digestive tube.

A similar disposition exists in the dog; the pancreas is also provided in this animal with two ducts, one of which opens into the duodenum just above the orifice of the ductus choledochus, while the other unites with the biliary canal, a direct communication existing between the two ducts, as in the human species. A small tubercle on the internal surface of the intestine points out the seat of the principal orifice, common to both the pancreatic duct and the biliary canal; immediately above this point a second tubercle corresponds to the opening of the accessory, or independent, pancreatic duct. We here exhibit the stomach of a dog, in which the above-mentioned dispositions are conspicuous, and it will be easy to show you the anastamosis between the two ducts by a direct experiment. When a colored liquid is injected into one of these apertures, it flows immediately from the other, affording a manifest proof of the communication between them.

(M. Bernard here introduces a fine syringe into the principle orifice, and injects water with force into the corresponding duct; a jet immediately escapes from the neighboring aperture.)

The existence of this anatomical peculiarity in dogs has been described long ago by R. De Graaf, and was even known to exist in man. Meckel states that in the fœtus a double canal corresponds to a double pancreas; in the adult, this bifidity disappers, according to Meckel, and only one duct is found, the double gland having coalesced into a single mass. Although the celebrated anatomist was mistaken in this particular, I readily believe in the bifidity of the pancreas during the fœtal state. I have found this to be the case in the canine species; and the existence of a double apparatus in the fœtal state, which corresponds to a single organ in adult animals, is of very frequent occurrence. In the gallinaceæ, for instance, the left ovary is atrophied when the bird arrives at its full development.

The dog is of course the animal usually employed in making experiments on the pancreatic secretion; and the accessory duct is generally chosen for this purpose. The operation is performed in the following manner:

An incision is made upon the adominal parietes in the median line, in the vicinity of the pylorus; the muscles being drawn aside by an assistant, the operator seizes the duodenum with a forceps, separates it from the adjoining parts, and draws it out through the wound. The pancreas, the intimate connections of which with this portion of the digestive tube are well known, is in this manner extracted from the abdominal cavity; the vessels are then drawn aside, the utmost care being taken not to injure them; and a small portion of the accessory duct is thereby laid bare. On this point the incision may be performed, without irritating the delicate gland, which the slightest touch would inflame. A thread being passed under the duct, it is opened, and a silver tube is fixed by means of a ligature in its cavity; it is often found necessary to fasten the tube in the duct in two separate places, in order to prevent it from escaping. The duodenum and pancreas are then carefully replaced within the abdominal cavity, the extremity of the canula still protruding from the wound. The tube employed for this purpose must be four or five inches long, and provided with a stylet, to clear it from obstructions.

The pancreatic secretion has not exclusively been studied in the canine tribe: its properties have been examined in several other animals.

In the cat the disposition of these ducts is so irregular as to baffle all description: in most cases, there exist several of them. In the rabit this distribution is highly favorable to the experiment; they spread over the mesentery, in the shape of a fan, before penetrating into the duodenum; nothing, therefore, can be easier than to open them and insert a tube into the cavity. The anatomical preparation which we place here under your eyes, exhibits the above-mentioned arrangement.

In the ox the pancreas is equally provided with a large number of excretory ducts; the greater part of these are anastomosed with the biliary apparatus; some of them fall into the ductus choledo-

chus: others arrive at the gall-bladder itself; and the biliary ducts are not unfrequently connected with little pancreatic glands, which pour into their cavity the fluid which they produce. There always exists, however, one independent duct at least, which opens separately into the duodenum: on this point is the operation performed; but even after tying most of the accessory ducts, it is impossible to collect the whole of the liquid secreted by the pancreas, a large proportion of which flows directly into the gall-bladder. We place here under your eyes the duodenum of an ox, with the neighboring portions of the stomach; and in this preparation you see the ducts which arise from the pancreas, freely anastomosed with the various ramifications of the billiary canal.

The method of obtaining pancreatic juice which has just been described, is altogether different from the one adopted by De Graaf: in his researches on this subject, he used to make a wide incision on the abdominal walls, which allowed the whole intestinal mass to escape; the pancreas being then separated from the neighboring parts a tube was introduced into its principal duct; but the subsequent results of this somewhat brutal separation appear to have vitiated the secretion of the gland, for De Graaf's description of the properties of this fluid is far from coinciding with the notions actually entertained on this point.

Other observers had opened the dodenum, in order to obtain a supply of pancreatic juice, but Tiedemann and Gmelin had recourse to the operation we have described, and were thus enabled to obtain large quantities of this fluid without wounding the intestine: the advantage of avoiding this useless injury is too evident to be explained.

The operation must in every case be performed while the animal is in full digestion, for in the healthy state the secretion only takes place at that moment, and the nerves of the pancreas being imperfectly known, we are unable to bring galvanism to bear upon them, for the purpose of stimulating the activity of the gland. On the other hand it is of the highest importance to obtain a certain quantity of the fluid at once; for if several hours are allowed to elapse after the operation, before any is collected, an acute inflammation may have taken place, and a vitiated secretion is obtained instead of the normal products of the gland. In most cases, however, if the operation has been properly performed, these accidents do not occur, and the animal furnishes a healthy secretion in abundance, for the space of several days.

Observations on the Treatment of Puerperal Eclampsia: By Dr. Pirrie, Belfast.

There is more or less cerebral congestion in these cases, which may be followed, in rare cases, by effusion; but this is not the *primary* disease. It is a direct consequence of the spasmodic action of muscles of respiration interrupting the oxygenation and

due circulation of the blood. He believes true puerperal eclampsia is caused by albuminuria. A condition very analogous, if not identical with anæmia, is produced by the kidneys permitting the exudation of serum, while they retain excrementitious matters, which should have been eliminated, causing the contaminated blood to circulate with difficulty, giving rise to œdema.

Simpson, who was one of the first to demonstrate the intimate connection between albuminuria and puerperal eclampsia, though hesitating to place them in the relation of cause and effect, yet describes them as, perhaps, simultaneous or successive effects of one cause, viz: a pathological state of the blood, to the occurrence of which pregnancy peculiarly disposes the patient.

Dr. P. is more inclined to refer it to congestion of the kidneys, caused by a direct pressure of the gravid uterus. In support of this view, we have the vast preponderance of such attacks in primiparæ, and the rapidity with which the albumen disappears from the urine after delivery. Sir Charles Locock, in the article "Convulsions," in the *Cyclopedia of Practical Medicine*, in assigning mental emotions as excitants of these paroxysms, says: "It has been long remarked, that unmarried women are more liable to be sufferers from convulsions, from the shame and distress under which their children are usually born." When we bear in mind the efforts made by such women to conceal their condition, we may readily conclude that direct physical pressure has more influence in the production of the convulsions in these cases than mental emotions.

The treatment is to relieve the pressure, not on the brain, but on the renal vessels; eliminate noxious matters from the blood, and stimulate the kidneys to a healthy secretion. These rules are applicable, whether the convulsions appear during pregnancy or labor, or after delivery. Thus, we may act freely on the stomach and bowels, reducing the contents of the abdomen, and eliminating noxious matters from the circulation; we may restore healthy urinary secretion by the administration of benzoic and tartaric, or other vegetable acids, as recommended by Braun and Fresichs. Finally, when danger is imminent, evacuate the uterus.

Chloroform and ether are useful adjuvants. In this connection we must remember the highly important fact discovered by Kussmaul and Tenner, in their experiments, that in animals subjected *to* etherization, convulsions could not be induced.

While opposed to venesection as a prophylactic and curative agent, as he firmly believes its tendency is to increase the severity of the attack, to debilitate the patient and delay the recovery, yet he thinks local bleeding, leeches to the temples, or cups to the nape of the neck, may be beneficial, by moderating the secondary congestion. In lieu of the warm bath, which is very difficult in the majority of cases to employ, he prefers sponging the surface with warm vinegar and water. To recapitulate:

Convulsions are *not* caused by plethora of the brain, but by anæmia or defective nutrition.

Depletion aggravates the tendency to convulsions.

All cases of true puerperal eclampsia are associated with and caused by albuminuria, which is most probably caused by renal congestion, the effect of direct pressure.

The indications for the rational treatment are:

To relieve pressure, the cause of renal congestion. Eliminate noxious matters from the circulation, and to stimulate the kidneys to healthy secretion.—*Doub. Quar. Jour.*, May, 1860.

On Hemorrhage from the Bowel, in Children, as a sign of Polypus in the Rectum. By THOMAS BRYANT, Esq., F. R. C. S, Assistant surgeon to Guy's Hospital.

[Polypus of the rectum is usually considered a rare affection; but, within the last two years, at least twenty examples have fallen under the author's notice. The connection between hemorrhage from the bowel in children, and polypus of the rectum, is remarkably constant. Mr. Bryant says:]

In the majority of the cases which I have observed, the disease has existed for many months; they have all occurred in children under ten years, and, in most, the disease has been regarded and treated for piles. In some cases the discharge of blood from the bowel is constant, and its buttocks smeared with a bloody mucus. In these instances the polypus will generally be found to be within, if not protruding from, the sphincter. In other examples, occasional discharges of blood will be observed, although not to any very great extent, and this discharge will generally accompany and follow the act of defacation. In others, again, the hemorrhage will take place independently of any such process. There will, generally, be some straining after stool, but I have never observed any prolapse of the rectum; and although this disease is troublesome to the child, and of course debilitating by the repeated, if not constant hemorrhage, when once recognized it is easily treated and rapidly cured.

The recollection that such a disease is not so uncommon, and that it is always associated with hemorrhage from the bowel, should at once lead the surgeon to examine the part with his finger, when the growth will probably be easily detected. It is generally situated about one or two inches up the bowel, and will be found to vary from the size of a pea to that of a large nut. In some cases more than one will be present; they are always very moveable, and easily slip away from the finger upon anything like pressure; and at times some little difficulty is experienced in fixing them for removal. Such a practice is the only correct statement, being invariably followed by a successful result. It may be done by means of forceps or ligature; and in many cases I have broken the polypus off its attachment by hooking my finger round its pedicle. No bad result has ever followed. The pedicle is always very slender, although it may be an inch or more in length.

The structure of the polypus is very simple, microscopically presenting the ordinary characters of the fibrocellular growths. After removal no subsequent treatment is required, and recovery may confidently be expected; the rectum, however, should be carefully examined, so that a second polypus be not overlooked.

I have thus briefly brought this small but not unimportant subject before the notice of the profession, feeling confident that the existence of polypus of the rectum is not so uncommon as is generally believed, and that such an affection is usually mistaken and treated for piles. In children, the presence of bleeding from the rectum should at once lead the practitioner to suspect the existence of polypus; and, when detected, its removal is the only correct treatment. I have never had an opportunity of seeing a child suffering from piles, and believe that cases so described are generally mistaken, and that, in reality, they are cases of the disease now under consideration.—*Lancet, Nov.* 26, 1859, *p.* 530.—*North Carolina Journal.*

On the Deglutition of Alimentary Fluids.—Prof. J. H. Corbett, M. D., in a paper read before the Physiological Subsection of the British Association for the advancement of Science, at its recent meeting in Oxford, endeavored to prove that there are two distinct forms of deglutition; that, while the alimentary bolus is propelled with rapidity over the epiglottis, fluids can flow in two streams, one at each side of the epiglottis and of the aryteno-epiglottic folds, without the danger incidental to its passage over the central aperture of the larynx. This occurs in the infant and the mammal during suction; it takes place in the sipping of fluids, swallowing of the saliva, and during drinking in a continuous draught. Ordinary drinking is accomplished by gentle muscular movements, which should not be confounded with the gulping of fluids. In gulping, the fluid is rapidly and forcibly propelled backwards, and this act somewhat resembles the deglutition of solids.

In experiments made by the author on the dead body, fluid poured upon the dorsum of the tongue passes backwards into the pharynx in two streams, through the grooved passages situated at each side of the epiglottis and aryteno-epiglottic folds.

In the living body, during the deglutition of fluids, the uvula falls forward upon the tongue, in front of the epiglottis; and both the uvula and epiglottis afford protection to the respiratory apparatus. The fluid is divided by the uvula into two currents, which descend at each side, under the half-arches of the palate; that such is the principal use of the uvula. The anatomical arrangements in the human body are perfectly adequate for the transmission of fluid in this safe manner. The anatomy of the porpoise, in which the larynx rises in the form of a blow-tube for several inches above the level of the tongue, affords a strong confirmation of

this view; which is further sustained by instances in which the epiglottis has been destroyed. The distinctness of the two forms of deglutition is also indicated by the fact that the mouth may be filled with food, and yet drink can be swallowed without displacement of the solid aliment.—*Brit. Med. Jour.*, July 21, 1860.

Periodicity as a Character of Disease. By RICHARD HUGHES, M.R.C.S., L.R.C.P.ED., Surgeon to the Brighton Orthopædic Hospital.

There is one disease—ague—of the phenomena of which periodicity is an invariable characteristic. There are other affections—the neuralgia and nervous headaches—which very frequently assume a regular intermittent character. And occasionally, in the course of various diseases, a tendency to a periodical type is manifested.

Quinine and arsenic are specifics in ague. They are hardly less valuable in neuralgia and nervous headaches. And when, in works on medicine, we meet with the remark that sometimes the symptoms seem to come on periodically, it is generally coupled with the statement that in these cases quinine will be found of the utmost value.

What is the *rationale* of the facts?

The cause of the regular periodic recurrence of the paroxysms of intermittent fever is discussed by Dr. Watson, in the first volume of his Lectures on Medicine, p. 758. After passing in review the various theories that have been advanced to account for it, he leaves the subject as one altogether uncertain. Cullen's hypothesis as to the influence of diurnal habit he thinks the nearest approach to the truth; but admits that this will in no way account for the tertian and quartan types of ague. In this state of uncertainty, the peculiar poison—malaria—which causes intermittent fever has been generally regarded as the source of its periodical character. It is supposed to act in the way of a ferment in the blood; and the zymotic process set up by it is supposed to have its regular development and decline, the paroxysms being its effect on the nervous system when the process attains its acme. When other affections manifest a periodic type, it is supposed that their subjects have either had ague or been exposed to malarious influences. On the other hand, quinine and arsenic are considered to be antidotes to the malarious poison, and thus to counteract its periodic influence in all affections which tend to assume that type. But I think I shall be borne out by general experience when I assert that periodic phenomena are manifest in many a case of neuralgia or other disease, when the hypothesis of malarious influence is altogether shut out. This theory, therefore, in itself *a priori* most improvable, must be at once rejected.

If, then, the periodicity of ague does not depend upon the peculiar poison which occasions it, does it depend upon the peculiar por

tion of the organism which that poison affects? This is universally acknowledged to be the nervous system—the sympathetic.

Let me place one after another some of the principal phenomena of the cold stage of ague, with those produced by galvanization of the sympathetic in the neck.

In the cold stage of ague "the patient feels chilly; the blood deserts the superficial capillaries; he grows pale, his features shrink, his skin is rendered dry and rough, his respiration is quick and anxious; his pulse frequent sometimes, but feeble; all the secretions are usually diminished; may make water often, though generally he voids but little, and it is pale and aqueous; his bowels are confined, and his tongue is dry and white."—*Watson, op. cit.*, p. 735.

Let Dr. Brown-Sequard now tell us the result of his galvanizing the sympathetic in the neck:—"The pupils are dilated; the eyelids wide open; the globes protruding. Blood deserts the superficial vessels; secretion is diminished or checked; temperature and all vital functions lowered."

It is clear from the above that the essential phenomena (diminished afflux of blood to the surface, check of secretion, and lowering of temperature) of the cold stage of intermittent fever may be produced artificially by excitation of the sympathetic nerve, and are dependent upon the contraction of the blood-vessels thereby occasioned. The hot stage is no less explicable as the natural reaction of the vessels to even beyond their normal calibre, and finds its precise analogue in the phenomena which results from section of the sympathetic in the neck.

It would appear from the above that the sympathetic system is that part of the organism specially affected by the malarious poison, and that the phenomena of ague depend on a periodic excitation of it by the poison, followed by an equally immoderate reaction in the opposite direction, which latter at length settles down to the equilibrium of health. And upon the hypothesis the beneficial influence of quinine and arsenic in this disease receives its perfect *rationale*. For these are well known as (to use Dr. Handfield Jones' term) "toners of the vaso-motor nerves"—*i. e.*, of the sympathetic—and their tonic influence thus exerted will obviously render it capable of resisting the morbid irritation of the malarious poison; a view of which is confirmed by the well known fact that quinine is no less valuable as a preventive than as a curative agent against this malady.

But will the fact of the sympathetic system being the seat of the phenomena of ague help us to explain the periodic character of these phenomena? I think it will. Let us consider the actions of the heart and the uterus, two muscular organs supplied mainly or entirely by this nerve.

What is the cause of the rhythm of the heart? It cannot be the stimulus of the blood, or of anything else within the body: for a frog's heart will continue its regular systole and diastole for some time after its removal from the thorax. The only motive agency

then left to it is that of the sympathetic ganglia, which are imbedded in its substance. To these nervous centres we are therefore shut in our inquiry as to the heart's action; but the influence of these centres is neither continuous nor occasional, but rhythmical—*i. e.*, periodic.

The uterus resembles the heart in its also possessing numerous sympathetic ganglia imbedded in its muscular walls, and in entire independence of the cerebro-spinal system in its movements. Is there anything here periodic? We immediately think of the regular monthly recurrence of the phenomena of menstruation, and of the act of parturition, which (as first shown by Dr. Tyler Smith in the pages of *The Lancet*) is determined by the menstrual periods being normally due on the twenty-first day after the commencement of the last menstruation.*

From the marked periodicity apparent in the action of these two organs, exclusively animated by sympathetic ganglia, we seem justified in the conclusion that a periodical evolution of nerve-force is characteristic of this division of the nervous system; and if this be the case, we cannot be surprised that it should give its peculiar character to phenomena resulting from the effect of a poison upon itself. Thus the periodic character of the paroxysms of ague is reduced under the mere general law of periodic character of phenomena, morbid or natural, over which the sympathetic system presides, dependent upon the endowment of this system itself.

It follows that periodic phenomena appearing in the course of any other diseases must be attributed to an involvement of the sympathetic system in their morbid irritation; and thus the beneficial effects of quinine and arsenic in all such cases fall under the general law of their toning influence upon that system. I may instance the most common affection which inclines to a periodic type—nervous headache. Dr. Symods, in his admirable Gulstonian Lectures upon this subject, shows by many arguments that the vascular nerves—*i. e.*, sympathetic—of the brain and skull are the seat of pain in this affection, and, in common with general experience, regards quinine and arsenic as the sheet-anchor in its treatment.

I venture to admit that the following original conclusions are established by the preceding considerations:—1. That ague is an affection of the sympathetic system. 2. That its periodical character is dependent upon a periodicity impressed upon the sympathetic system, and manifested in all the phenomena, morbid and natural, over which it presides. 3. That the *modus operandi* of quinine and arsenic in ague and other periodical affections is the toning influence exerted by them on the sympathetic nerve. The doctrine also of the dependence of the heart's movements on its embedded ganglia, and of the menstrual periodicity as the determining cause

* This theory should be more widely carried out in obstetric practice. I have been delighted at the exactitude with which it has enabled me to predict even the day of delivery. The advantage of such a pre-knowledge, whether to patient or practitioner, is immense.

of parturition, receive no slight corroboration; and our instinctive recourse to quinine and arsenic, whenever periodic symptoms manifest themselves, receives alike its *raitonale* and its establishment.

On Iodine Injections in Ovarian Cysts. By Prof. Scuh.

The primary action of iodine injections on ovarian cysts is remarkably variable; and that not only according to the quantity and dilution of the tincture, the amount of the still remaining contents of the cysts, and the peculiarities of the individual, but also according to the condition of the cyst itself as regards its thickness, solidity, its connections with surrounding parts, its surface, and the abundance or scarcity of the supply of vessels—leading to the greater or less stimulation of the cyst, as well as its influence on the nervous system. The peculiarities of the walls of the cyst due to their permeability, and their capability of exosmose, and endosmose cannot be determined beforehand with any exactitude, not only in different patients, but even in the same patient, in a case of repetition of the injections—changes being determined in the texture of the sac which cannot be appreciated. A certain quantity of the tincture, which on the first occasion scarcely exerted any local or general influence whatever, may on a repetition of the injection give rise to the most violent and dangerous symptoms. This is the more extraordinary because the same disparity of effect is not observed in other affections in which the iodine injections are employed, *e. g.* ascites, abscess, thyroid, cysts, enlarged bursæ, etc.

The author has studied the primary effects of injections on fifteen occasions. Sometimes there is no pain or tenderness on pressure; or if the latter exists to some extent, it only lasts for a day or two, the iodine freely passing into the urine from the commencement. Sometimes severe pain is produced at the time of the injection, which persists with exacerbation, or it only first comes on some time after the operation. At the same time a great change in the general condition is noticed— restlessness, vomiting, sleeplessness, faintness, and rapidity of pulse being among the symptoms. In some cases the pulse remains unchanged, but great alteration has taken place in he countenance. In other instances the pulse is very small and feeble, as well as rapid; the extremities are cold, and consciousness is temporarily lost—alarming symptoms that may continue for several hours or a day, and then gradually cease. Not only is iodine found in the urine a few minutes after injection, but likewise in the saliva and in the vomited matters; this iodine reaction being exhibited for from four to twelve days, although the other symptoms have usually terminated earlier. In some cases the primary influence seems to be expended on the cyst and its vicinity, since great pain and tenderness arise, to be followed by shivering and heat, indicating either suppurative inflammation of the cyst, or the development of a dangerous peritonitis. There can be no doubt that the symptoms of poisoning

above mentioned arise chiefly from the rapid passage of the iodine into the blood; but although the nervous system may be principally affected, through this, its becoming so, so rapidly, in some cases, also indicates a primary action of the iodine upon it.

The *indication for the iodine injection* is the existence of a unilocular globular cyst which has not reached too great a size, having but thin walls, presenting an equal resistance at all points, and containing thin, serous fluid. In order the better to judge of these points, a preliminary puncture of the cyst should always be made, discharging the contents as far as possible. The manner in which this preliminary puncture is borne—*i. e.* with respect to the amount of irritation produced—will give some idea as to the quantity and concentration of the fluid which is hereafter injected. This injection should be proceeded with as soon as the fluid has collected again in sufficient quantity for a puncture to be made without risk of injury to the intestines, it being by no means desirable to wait until the tumor has reacquired its former volume. When after the preliminary puncture a large mass is still left behind, we may conclude either that the walls of the cyst are thick and vascular, that there are multiple cysts, that there are villous or other pediculated growths from the inner wall, or that the cyst is interwoven with fibrous or other parenchymatous structure. These circumstances diminish greatly the chance of success, or they prohibit the performance of the injection. In some rare cases, indeed, in which two or three cysts have existed, the injection of the largest of these has sufficed for a cure; the iodine, through the operation of the endosmose or exosmose, exerting its influence upon the smaller cysts; or the smaller cysts having become perforated through the larger, the remedy thus gains access to all. But upon such exceptional instances the surgeon cannot count. In very large cysts, by which great traction of the viscera, dyspnœa, etc., have been induced, and in cysts exhibiting irregularities of surface and indurations, which may arise from the aggregation of numerous cysts, or from the presence of fibrous, carcinomatous, or other degenerated masses, the idea of the injection should be entirely abandoned. It would lead to a more rapid growth, or give rise to suppurative inflammation. When the puncture gives issue to the thick, gelatinous fluid, this indicates a condition of the walls of the cysts not easily influenced by iodine. It is very rare for such fluid to become thinner and more serous on subsequent punctures.

The fluid to be injected should amount to from two to six ounces, consisting of tincture of iodine diluted by from one to eight parts of water, adding a scruple of iodine of potassium. As the extent of its stimulating power cannot be always forseen, it is best, especially on the first occasion, and when the cysts has been nearly emptied, not to employ it too concentrated. The desirableness of preventing access of air during the injection is obvious; and the canula and tube affixed to the syringe are best made of platinum, this being the metal upon which iodine exerts least action.

The fluid is not to be allowed to run out again; but should very severe pains follow immediately after the injection some water should be thrown in in order to effect dilution. The stimulation of the cyst by the iodine usually leads to an inflammation which is limited to the walls of the cyst. The serous exudation is increased, and the tumor in a few days reacquires the size it had prior to the operation. After then the size gradually diminishes, and it is a very favorable sign, when with such diminution in size an increase of resistance or an actual induration is perceived. This latter condition is due to coagulation of albuminous matters induced by the iodine, and these are often so thick that a repetition of the puncture at this period gives issue to no fluid, or only a very small quantity. After weeks or even months further changes take place, in virtue of which the coagula disappear, and the contents of the sac again become serous. As long as any diminution in the size of the tumor is observed, however slow in progress this may be, no repetition of the operation should take place; nor should such repetition be put into force as long as any considerable tenderness on pressure remains. It is indicated when the inflammatory condition has been quite transitory, and when the enlargement takes on an increase, or remains completely stationery for longer than six weeks. In some cases the repetition may be necessary from two to six times. When from the entrance of air or other cause, foul suppuration, with extrication of gas, is engendered, and there is tenderness on pressure, fever and loss of strength, a simple puncture should be made and a catheter left in or the aperature enlarged. In all such cases a most careful cleansing of the cavity, by means of repeated injections of water or decoction of bark should be effected. It has been said that by repeated iodine injections the contents of a cyst may be converted from a purulent to a serous fluid; but in this statement the author puts no trust—a similar result never being produced by injection of abscesses.

The statistics of the results of the iodine injection are given very differently by different authors. This seems to have arisen more from the mode in which the cases were chosen, and the degree of exactitude with which they were reported, than from trifling differences in the operative procedure. The author can only speak personally respecting six cases for which fifteen injections were employed. In only one of these did complete recovery take place, and that after a second injection. It was the only one of the six which united all the conditions necessary to secure a favorable issue. In a second case the cyst was bilocular, and a slight diminution of its size only resulted from five injections. The others were multilocular cysts, or the cysts contained a thick, gelatinous fluid—constituting cases which were, according to the author's present conviction, unsuited for iodine injection. In two of them no essential change was produced, and in the others the end of the patient seemed to have been hastened, partly through the speedy repetition of the operation, and partly through suppurative inflammation and peritonitis being induced.—*Zeitschrift der Aerzte zu Wein*, 1859, *No.* 48.

PROVISION SUPPLIES FOR LONDON.—The correspondent of one of our exchanges gives some interesting facts in regard to the provision supplies for London, taken from the statistics published in one of the Quarterlies.

Of fish, there are from our Eastern coasts sent up hundreds of tons every morning, chiefly herrings. The South Western Railway sends up annually four thousand tons of mackerel. The Great Western brings up one thousand five hundred tons of fish in the year; and the Brighton and South coast conveys fifteen thousand bushels of oysters, besides four thousand tons of other fish. These are speedily transmitted by fish mongers and street coster mongers over the whole town. Red mullets come from Cornwall, smelts and eels are brought by the Dutch boats, pyramids of lobsters from the Norwegian fiords, turbots fattened on the Dogger-bank, together with our Thames whitebait and "Natives," (oysters,) all of these find ready welcome and rapid consumption in incredible quantities. Sometimes twenty thousand lobsters are conveyed alive from the Norwegian coast to East Grimsley, in a single night, and are forwarded to London by the Great Northern Railway. Ten thousand more arrive from our own and the French coasts. "Four boiling houses receive these shelly ruffians, twisting and fighting, and for a trifle sum per score, change them from black to scarlet in twenty minutes." The lobsters are first killed by the insertion of a needle through the head. If boiled alive they would cast their claws. The lobster trade is chiefly in one man's hands, who pays £15,000 a year to the Norwegians, for this single article. It is positively declared by the traders, that the supply of fish to London is from three hundred millions to four hundred millions pounds weight per annum.

As to *flesh meat*, a million and a half of sheep, more than a quarter of a million of oxen, and calves and pigs in proportion, were brought to Smithfield alone, in London, in one year, (1853,) and the present annual supply must be greater. Much cattle now comes from the Continent, chiefly from Holland and Denmark. There is also a vast amount of country-killed meat brought to the metropolis, including supplies from Scotland. About fourteen millions pounds weight of flesh meat are annually consumed. The quality as a rule is excellent.

There is a great consumption of *chops* in London, and they are generally first rate, and well served. A butcher in the city proper, says: "Sometimes I cut one hundred saddles into mutton chops in one day."

The quantities of *game* and *wild birds* sent to salesmen almost exceed belief. When the shooting season begins in the Highlands of Scotland, it is not unusual for one firm to receive five thousand heads of game, and as many as twenty thousand to thirty thousand larks are often sent up together. Ostend sends annually six hundred thousand rabbits; from Ireland come flocks of plovers, and quails from Egypt and the South of Europe. On one occasion,

seventeen thousand of these birds were sent from the Roman Campagna. Of two millions of fowls for the London tables, the greater number come from the two counties of Sussex and Surrey; many also come from Ireland. The bulk of the geese, ducks, and turkeys come from Norfolk, Cambridge, Essex, and Suffolk. The estimate of all the poulterers' stock annually consumed here, including hares and rabbits, amounts to some unknown figure between six millions and ten millions.

London milk is not so bad as its old reputation leads the world to suppose. I do not believe that either chalk or sheeps' brains are largely mixed up. Certainly "the cow with the iron tail" (the pump to wit) gives copious dilutions to the kindly gifts of the cow proper. And there are 200,000 of cows in the metropolitan dairies and suburbs—one of them within a stone's throw of where I write, and in which beautifully clean, carefully tended, glossy fat, well fed, are about one hundred cows of the finest breeds. Much milk also comes from the country, one railway bringing three million quarts annually.

The *vegetables* are chiefly raised in the alluvial valleys, between London and Greenwich. Thirty-five thousand persons are employed in furnishing them to the dishes of the metropolis. Whenever there is a dearth of vegetables, telegrams are sent for supplies to Holland, France, and Belgium, and, in answer to the appeal, France has sent by sea and the South Eastern Railway as many as one hundred tons of peas, and twenty-five tons of plums, and ten tons of black currants, in a single night.

The *liquids* consumed in London, besides water, (now increasingly used in connection with public fountains and the progress of temperance,) amount to nearly *a thousand million tumblers* of ale and porter.

Of *bread*, there are made four hundred and thirteen millions of half-quartern loaves, and buns and tarts in proportion.

Love and the Doctors.—The following extracts are taken from "A Book about Doctors," recently published in London:

"Love has not unfrequently smiled on doctors, and elevated them to positions at which they would never have arrived by their professional labors. Sir Lucas Pepys, who married the Countess de Rothes, and Sir Henry Halford, whose wife was a daughter of the eleventh Lord St. John of Bletsoe, are conspicuous among the more modern instances of medical practitioners advancing their social position by aristocratic alliances. Not less fortunate was the farcical Sir John Hill, who gained for a bride the Hon. Mrs. Jones, a daughter of Lord Raneleigh—a nobleman whose eccentric opinion that the welfare of the country required a continual intermixture of the upper and lower classes of society, was a frequent object of ridicule with the caricaturists and lampoon-writers of his time.

"But the greatest prize ever made by an Æsculapius in the mar-

riage market was that acquired by Sir Hugh Smithson, who won the hand of Percy's proud heiress, and was created the Duke of Northumberland. The son of a Yorkshire baronet's younger son, Hugh Smithson, was educated for an apothecary—a vocation about the same time followed for several years by Sir Thomas Geery Cullum, before he succeeded to the family estate and dignity. Hugh Smithson's place of business was Hatton Garden; but the length of time that he there presided over a pestle and mortar is uncertain. In 1736, he became a Fellow of the Society of Antiquaries, but he withdrew from that learned body, on the books of which his signature may be found, in the year 1740. A few months after this secession, Sir Hugh led to the altar the only child and heiress of Algernon Seymour, Duke of Somerset. There still lives a tradition that the lady made the offer to Sir Hugh immediately after his rejection by a famous belle of private rank and modest wealth."

How some of the wooers looked when wedded, the annexed passage will show:

Dr. Cadogan, of Charles the Second's time, was, like Sir John Eliot, a favorite with the ladies. His wont was to spend his days in shooting, and his evenings in flirtation. To the former of these tastes the following lines refer:

> "'Doctor, all game you either ought to shun,
> Or sport no longer with the unsteady gun;
> But, like physicians of undoubted skill,
> Gladly attempt what never fails to kill,
> Not *lead's* uncertain dross, but physic's deadly pill.'

"Whether he was a good shot we cannot say; but he was sufficiently adroit as a squire of dames, for he secured as his wife a wealthy lady, over whose property he had unfettered control. Against the money, however, there were two important points figuring under the head of 'set-off'—the bride was old and querulous. Of course such a woman was unfitted to live with an eminent physician, on whom bevies of court ladies smiled, whenever he went west of Charing Cross.

"After spending a few months in alternate fits of jealous hate and jealous fondness, the poor creature conceived the terrible fancy that her husband was destroying her with poison, and so ridding his life of her execrable temper. One day, when surrounded by her friends, and in the presence of her lord and master, she fell on her back in a state of hysterical spasms, exclaiming, 'Ah! he has killed me at last. I am poisoned!' 'Poisoned!' cried the lady friends, turning up the whites of their eyes. 'Oh! gracious goodness! you have done it, doctor!' 'What do you accuse me of?' asked the doctor with a surprise. 'I accuse you—of—killing me—ee," responded the wife, doing her best to imitate a death struggle. 'Ladies,' answered the doctor, with admirable nonchalance, bowing to Mrs. Cadogan's bosom associates, 'it is perfectly false. You are quite welcome to open her at once, and then you'll discover the calumny.'"

The Tendencies of the Present Day in regard to the Doctrine of Debility, and the Treatment of Disease by Stimulants.

Dr. Samuel D. Gross introduced the subject for discussion, by remarking upon the numerous revolutions in medicine. Change is written everywhere. Each age has its absurdities and inconsistencies. This is natural so long as each one acts as a free agent. Were there no changes there would be no sound progress, and the science would become stagnant.

It requires no prophetic eye to perceive that we are on the verge of a most fearful revolution in medicine; hence it is proper to pause and inquire, "Watchman, what of the night?"

The tendency of the medical profession, at present, is to the abandonment of all active depletory measures, and to the employment of stimulants, on the ground that a change has occurred in the type of disease, and that man is no longer able to bear the former active treatment. Many practitioners even coincide with the late Dr. Todd, of London, in the belief that leeches can never be used with safety.

The inquiries of the present paper will be two: first, has there really been any change in the type of disease? and, secondly, are the people of the present day less capable of resisting active depletion? The endeavor will be to show that both of these views are untenable; that they originate in misconception and superficial observation. The stimulant treatment is not new. We find in the last century, all over Europe, the Brunonion system exercising a powerful sway over the minds of many otherwise enlightened practitioners—some even supposing that in it they had discovered the philosopher's stone in the treatment of disease. John Brown, the author of this theory, pretended to have made a stupendous discovery, founded upon his own personal experience. The speaker then gave a brief biography of this remarkable personage, and the progress of his doctrines through England and the Continent, especially in Italy and Germany.

After this brief digression, the lecturer came to the consideration of the two questions proposed.

Is there really a change in the type of disease? and is it true that mankind are unable now to bear depletion when laboring under inflammation, as well as in other times? To the first he would reply in the negative. In a practice of upwards of thirty years, he had seen no reason to justify such an opinion. Diseases seem the same now as when he entered upon the practice of medicine. Even in epidemics no change of type seems to have occurred; but in ordinary inflammatory diseases the only changes to which they are liable are dependent upon individual peculiarities, etc. In point of facts, the morbid action is essentially the same, varying in degree but not in character. The same causes which were in operation thirty years ago, act now.

Entertaining these convictions, he need scarcely say that the

treatment so much insisted on by Bennet, Todd, and others, of all inflammatory affections, by stimulants, has not only no foundation in truth, but is at direct variance with the best interests of the sick and the reputation of the physician. It is difficult to conceive how any enlightened physician can bring himself to entertain such a belief.

The only safe way to treat disease is to look at every case as making its own laws, which have reference to the exciting cause, the structure involved, the duration of the attack, and the prior state of the system. If the stimulant school see nothing but reduced action or depressed vital power, it proves pretty conclusively one of three things: that they are incapable of making accurate observation, that they are blinded by prejudice, or that they have to deal with a class of patients whose habits and conditions are such as to forbid the employment of any other method of cure. The first two we cannot believe, and we therefore come to the conclusion that these gentlemen deal only with depraved, worn-out constitutions. But here we are at fault; such an idea would be absurd—they must certainly encounter occasionally a stout, robust patient. Nor can it be the stage of the disease at the time of their arrival on the scene. Fashion, all are aware, has its influence in medicine as well as dress. John Brown, a dissolute doctor, became the leader of a new sect in medicine, which retained its supremacy for nearly a quarter of a century—its sole basis being the relief which he experienced from alcoholic potations and laudanum when suffering with the gout. Unity of disease and the lancet were the great weapons of Rush. Purgatives ruled at the time of Hamilton. Dyspepsia, disease of the liver, etc., each had their turn as the fashionable disease. At present everything is a change of type in disease, and stimuli are the remedies; bleed the patient, and he dies; purge him actively, and if he recovers it will be very slowly. Just now the cellular pathology of Virchow is coming into notice, and seems destined to enslave to a great extent the medical mind. Although most medical men, as well as the community at large, at present regard blood-letting with terror, yet it has been beneficially employed millions of times. No doubt it has been abused. We can hardly reconcile with our notions of propriety the loss of *two*, much less of *three hundred* ounces of blood, in the course of a few days, for the cure of an idiopathic or traumatic inflammation, and yet such cases are easily found of a well-authenticated character in the annals of surgery.

Dr. Francis, of New York, distinguished alike as a skillful practitioner and an accomplished scholar, is a living monument of this heroic treatment. In a violent attack of croup, he lost, in a few days, nearly three hundred ounces of blood. Physick, in an attack of yellow fever, in 1787, was bled to the amount of one hundred and seventy-six ounces. No one at the present day would dare to follow such an example. It is no longer the fashion; the lancet grows rusty in its case, and the cutler has almost ceased to manufacture it. Even the occupation of the leecher is almost gone.

When a student in this city, thirty-two years ago, it was common, in attacks of acute pleuritis, to bleed the patient three or four times, and sometimes even that often a day—the same orifice being repeatedly opened for that purpose.

If we inquire into the causes of these revolutions, we shall find them not in a change of type, or in the powers of the system to withstand the effects of inflammation, but in a greatly enlarged knowledge of remedies, and of their application to the cure of disease. The use of quinia and morphia is now much better understood than formerly, and the antiphlogistic virtues of aconite and veratrum viride were entirely unknown until a very recent period. Quinia has become the great remedy in malarial affections; opium is a powerful adjuvant in allaying pain and procuring rest, both to the part and the system, and aconite and veratrum viride exercise so astonishing an influence in controlling arterial action as to render them special favorites with every enlightened practitioner. They have, in fact, taken the place of the lancet, tartar emetic, etc.

Thus we readily see why blood-letting has fallen into desuetude, unmerited, certainly; for, spite of all, an early spoliative venesection, and the judicious use of the more heroic articles of the materia medica would often do more in saving structure and function than any of the present popular remedies.

Practitioners are too prone to go to extremes, and be led away by specious theories. Losing sight of common sense, and forgetting the teachings of experience, they readily grasp the shadow and forsake the substance. Hence the discordant views which so constantly agitate our profession, perplexing the public mind, and impairing our influence. Hence the strong hold which all forms of quackery have taken upon the people.

The past is pregnant with useful lessons. It teaches, on the one hand, the futility of all exclusive systems of medicines, and, on the other, the importance of being governed in our views of pathology and practice by common sense, aided by a chastened experience, which holds fast to the good and useful and discards that which is hurtful. Its motto is enlightened, unprejudiced conservatism, ever ready to enlarge its boundaries by cautious observation and induction, and resolved to avoid exclusivism in every form. Standing upon this elevated and philosophical platform, rational medicine avails itself of all that is useful in mitigating or curing disease, not disdaining the lancet, etc., on the one hand, or, on the other, a recourse to stimulants.

In conclusion, while proclaiming himself an advocate of an enlightened eclecticism based upon experience, reasoning, and philosophy, he stated emphatically that he was not an advocate of large doses, or of the indiscriminate use of any medicine whatever. A judicious combination of a few well-selected articles, or occasionally the exhibition even of a single substance, united with absolute rest and a proper regulation of the diet, will generally accomplish the object much better, immediately and prospectively, than the polypharmacy and heroic treatment so much in vogue in cer-

tain quarters only a few years ago. As the practitioner grows older, he almost uniformly gives less medicine, satisfied that he is generally only the assistant of nature, and not her master.

Dr. Coates found the subject very copious, and one that might lead the discussion into many ramifications. He remembered some very striking changes of opinion, to which it was demanded that we should surrender our judgments. Many years ago, when Dr. C. was a resident in the Pennsylvania Hospital, the late Dr. W. P. had just arrived from Europe, brimful of the doctrines of Professor Broussais, of whom we had never before heard. At an early period, nearly the following conversation occurred, which Dr. C. would promise to rehearse correctly, and even accurately; although, in this point, we omit the style of the Society of friends in which it took place:

A. "Why, doctor, they tell me you say that there is no such thing as fever! Is that so?"

B. "To be sure, it is so. There is no such thing."

A. "Why, what ails that patient in the ward, then?"

B. "Why, all those appearances [meaning the general phenomena of the case] arise from the pain!"

A. "Pain! Why the man feels no pain. I examined him particularly on that point this morning."

B. "Oh! but that is because he cannot perceive the pain. The brain is in a state of oppression, and cannot perform its functions."

A. "Well! but, doctor, how is it possible that the heat, the frequency of pulse, the thirst, and other general effects can be produced by a pain which the man does not feel?"

B. "It is all owing to the pain of the organs—the suffering of the organs."

This was evidently a translation of Broussais' phrase, "Le cri de douleur des organes souffrants." Such a strange, vague, metaphorical and poetical use was made of words in a case calling for the utmost strictness and clearness of language!

After a remonstrance on the inconvenience of such expressions, the term "fever" was explained to mean *idiopathic* fever, not arising from local inflammation. On this the respondent, then young, refrained from the expression of an opinion, but inclined for the time, and until he should accumulate further study and observation, to the same conclusion.

Almost without a pause, Dr. C. was then assured that "there was nobody in the whole world that knew anything at all about the practice of medicine but the French, and none of them but Dr. Broussais." The respondent, willing to include his senior in the list of well-informed physicians, proposed adding "and his pupils." "And his pupils," was the rejoinder.

Another pause then ensued, succeeded by the following:

A. "Well, doctor, since you say so, I am willing to believe that Dr. Broussais has made the most valuable discoveries and improvements, and that they have been of the greatest use in his own

country, and will be so to us when we shall get to understand them, but, to set down all the observations of all sorts of men, of all degrees of talent and knowledge, in all ages of the world, and in all nations, as equal to nothing, seems to me extravagant."

B. (With a very quiet and patient manner,) "I said nothing at all about discoveries and improvements. What I said was, that there was nobody in the whole world that knew anything at all about the practice of medicine but the French, and none of them but Dr. Broussais."

A. "And his pupils?"

B. "And his pupils!"

After this, little remained to be said.

When an interval of years had elapsed, Dr. Coates became the senior physician of the Pennsylvania Hospital; and, at the same time, was an editor of a journal. He then deemed it his duty to make public trials of the Broussaisian method of treatment. This opened another wide field for discussion before the Society; but Dr. Coates would confine himself, on the present occasion, to a most peremptory and unqualified denial. He denied, in this manner, that he, and those who co-operated with him, had *ever* taken excessive quantities of blood from patients affected with fever, or that they had *ever* starved such. It was very rarely that patients had leeches or cups applied to them more than twice, and he did not believe that any individual had been subjected to another process more than three times.

Now, with American leeches, no European ones being employed, those used averaging a small size, and not a very good quality, he investigated the fact with very great care, and a number of times, and became absolutely certain that thirty or three dozen such leeches very seldom ever occasioned the loss of more than 4 ounces of blood, and did not probably average more than $3\frac{1}{2}$. Now, 3 times 4, or 12 ounces, 3 times $3\frac{1}{2}$, or $10\frac{1}{2}$ ounces, still less twice 4, or twice $3\frac{1}{2}$, or once either 4 or $3\frac{1}{2}$, were not extravagant quantities of blood to be drawn from fever patients.

The next god of the idolatry of comers from Paris was Professor Louis. From one of his most respected and influential pupils, Dr. C. received the following propositions:

Professor Louis had reduced important parts of the science of medicine to a certainty equal to that of the mathematics, and was doing the same service by more of it.

So very little was really known in medicine that the interlocutor believed it could be all contained in a very small book, no bigger than "*that*," exhibiting part of what printers call a "twenty-four-mo," about the fifth part of an inch thick.

A proposition demonstrated by Professor Louis' method was absolutely certain, and could not be controverted by any means whatever.

This required the thorough examination of all parts of the patient's body after death.

No notes not actually written at the time and on the spot were worthy of the least confidence.

No physician's experience of any case, or number of cases, was of any value for more than two years. After that, all inferences became conjectural and uncertain.

No tubercle ever occurred in the lungs, unless there was one at the vertex of the lungs.

No tubercle ever occurred in any other part of the body, unless there was one in the lungs.

From these two last, and other special rules, exceptions were continually occurring, and they were sometimes more numerous than the exemplifications of the law. Two cases of exception, in succession, occurred in negroes; and it was then apprehended that the rule would turn out to be that negroes differed from white men in this respect, and followed the example which Dr. C. thought laughable, of children and monkeys. This was stated to be that tubercles in such were equally disseminated throughout the lungs. They are irregularly scattered, and not equally so; nor do disseminated tubercles occur at all in any characteristic frequency in the case, the tubercles being generally of the common size.

With regard to the present new doctrine, the speaker was glad that Dr. Gross had, with so much justice, described it as a revival of Brunonianism, which had been so generally held to be confuted long ago. The practice had been amply tried in this city by Dr. Parrish, who, as well as his compeers, had found it necessary to greatly modify it, in accommodating it to daily judgment, experience, and the variety of cases.

The present discussion called for an account of Dr. Samuel Colhoun's cases. These were a series of fevers of a mild typhous character, and all of which would probably have recovered under any treatment that did not too wildly diverge from good sense, prudence and humanity. Dr. Colhoun lost none of them; and the treatment, besides hygienic cases, consisted exclusively in as much as they could be induced to swallow of arrow-root and other watery nutrients. Dr. C. could state that the pulse, in every instance, became fuller and softer after the institution of this practice in the individual; but, except annoyance at being urged to drink, there was no other remarkable character in them. It is most probable that they were mild dothinenteric cases.

On the Illumination of the Cavities of the Body by means of Electricity. By M. FONSSAGRIVES.

A long time ago the author had conceived the idea that the electrical light might be advantageously substituted in diagnostic researches, or in operative manœuvres, for the ordinary methods of illumination, which are either insufficient in intensity, or defective by the color of the light, or embarrassing by the impossibility of using them without interfering with the space required for instruments, and by the necessity, on account of the heat evolved, of keeping the light at a great distance from the surface to be illumi-

nated. The whole problem consisted in discovering a source of light, with little or no calorific action, which might be condensed in tubes of small size and of diversified form, and which would be of sufficient whiteness not to alter materially the color of the organic textures lighted up by means of it. By the assistance of M. Th. du Moncel and M. Ruhmkorff, this problem seems to have been solved in a satisfactory manner. M. du Moncel, having observed that the vacuum tubes of Geissler do not become heated under the influence of the electric light transmitted through them, and knowing, moreover, that this light is more brilliant in proportion as the tubes of communication between the terminal balls of the apparatus are of a smaller diameter, suggested that, in taking an apparatus of that kind, in which a long tube, almost capillary in size, should be bent upon itself, and convoluted in the manner of the electro-magnetic multipliers, we might obtain not only a kind of luminous cylinder, capable of being introduced into narrow cavities, but even a kind of electrical beacon, on certain points of which the light might be concentrated, without any risk either of over-heating or of commotions of any kind. The first part of the problem was, therefore, solved. With regard to the color of the light in the tubes, as this depends entirely on the nature of the gas on which the vacuum has been made, and as the color is white with certain mixed gases, as carburetted hydrogen, carbonic acid, hydrochloric acid, &c., all that is required to meet this part of the problem is to prepare the tubes with suitable gases. M. Ruhmkorff, to whom the construction of these tubes was entrusted, and who has introduced several improvements in their formation, has obtained results which are quite satisfactory. He has found out a mixture of gas, which gives a suitable white light in the tubes; and experience has shown that the amount of light afforded by the apparatus is more than sufficient for the requirements of medicine and surgery.

Without for the present tracing absolutely the field of application of this new means of illumination, the following may nevertheless be pointed out:—1. As a means of diagnostic exploration, in the examination of accessible organic passages, for the purpose of recognizing their normal or pathological condition. 2. As means of illumination to assist experimental action. It is easy to foresee the utility of this means in those operations which present, among their greatest difficulties, the impossibility of lighting up suitably the surfaces on which instruments are to act. In particular, the following will derive advantage from this new application: 1st. Staphyloraphy; 2d. Operations for vesico-vaginal fistula; 3d. Extirpation of naso-pharyngeal or uterine polypi; 4th. Excision of the tonsils, &c. Certain dental operations, also, may be expected to be rendered more easy of execution by this proceeding. It may be questioned, also, whether the field of the retina might not be illuminated more easily and completely by the same means.—*Acad. des Sciences*, Jan., 1860.

Report on Home Adulterations.

The committee upon the subject of Home Adulterations, appointed at the annual meeting of this association held in Boston last year, respectfully report:—

The subject of home adulterations is one worthy of the careful consideration of every member of society, whether pharmaceutist, physician or consumer—and *all* belong to the latter class—because of the pernicious and often dangerous results which ensue from the use of articles mixed with deleterious substances, or deficient in power, owing to inert substances used to enhance the profit of the unscrupulous tradesman.

Your committee feel deeply the responsibility of their duty; they feel that much ought to be said and done which they dare not take the responsibility, as individuals, of saying and doing. They trust that the time will come when State legislators, or the General Government, will cause such penalties to be affixed to the selling of adulterated articles that the business will cease to "pay," and that "honesty" will be practiced because it *is* "the best policy." During the past year your committee have had many articles of drugs, medicines and food submitted to their examination, and they have felt more and more the necessity of some means being devised for checking this abominable practice, which, in the language of another, "is undermining the very foundation of trade, viz: faith in commercial integrity."

We refer to our published report in our last year's "Proceedings" for the definition of an adulteration as given by Dr. Hassall, of London, who has done more than any other to draw public attention to the alarming facts of this species of fraud. He says an adulteration consists in the intentional addition to an article, for the purpose of gain or deception, of any substance or substances, the presence of which is not acknowledged in the name under which the article is sold. The change of an article entirely, and selling it under a false name in place of another, constitutes a *substitution* and not an adulteration.

Thus briefly referrring to the introductory of our last year's report, we would say that all the views we there express we still sustain. We have, during the past year, seen nothing to cause us to change our opinion as to the dangerous and hurtful tendency of this unlawful practice; on the contrary, all our experiences confirm us in the views we there express, and tend to convince us more fully that the public do not know the extent to which they are cheated, nor would any intelligent community submit to the imposition were they once fully aware of the danger and risk they are exposed to.

Adulterations are practiced for three principal reasons, as briefly stated by the author of "Falsification of Food:"

First.—For the purpose of making the substance more salable, by improving its appearance by the addition of some body, either innocuous or otherwise.

Second.—To depreciate the quality by adding some substance

which will diminish the *real*, without altering the *apparent* strength or general appearance. This is generally a very deadly fraud.

Third.—To depreciate quality and "extend" the quantity, by the addition of some simple substance, as water, or, if a solid body, as sand, gypsum, &c.

The matter of adulteration of articles of food is quite properly within the scope of a report on home adulterations; and your committee propose entering somewhat largely into this part of the subject, trusting that the association will grant them indulgence.

It is a sad and alarming fact that "death lurks in the pot;" that the community are exposed to injury, disease and death, by the very food they live upon, and the tea, coffee and water they drink.

It is often urged in deference to many of these nefarious practices, such as the addition of some of the salts of copper and lead, or cocculous indicus, to articles of daily consumption, that they are "used in *very small* quantities." We grant the statement to be true, and are deeply, we trust truly, grateful, as we ought to be, that we are not murdered outright, but scientifically and handsomely killed by inches.

Who can estimate the results of the continued introduction into the system, day by day, and month by month, of these poisonous additions to articles of food. No substance, however small its daily use, which is decidedly poisonous and pernicious, can be used without producing, finally, disease and even death.

Any physician can tell you of cases where the seeds of painful and lingering disease have been planted by some slow, insiduous poison. All of you are doubtless aware that disease often arises from the use of water through lead pipes; and who can say that of the many cases of "unknown disease," some of them may not have been caused by poison taken in the small but oft-repeated doses of the daily food.

We are aware that many, and among them even those of scientific reputation, scout the idea of any trouble arising from water through lead, but your committee feel that it is of such great importance that they cannot pass it by without a brief notice. It is a question upon which scientific men have differed; but with the present knowledge of the subject that we have, your committee can but recommend, in every practical case, the use of some other substance than lead for the conveyance of water to be used for drinking purposes.

Where so large a possibility of injury exists, prudence would dictate an entire avoidance of the danger.

One of your committee has been fully convinced of the great danger attending the use of water through lead pipe. He has known lead to be taken from a portion of the liver of a person who died with every symptom of acute lead poisoning, and who was considered by the attending physicians to be a victim of lead disease.

The susceptibility of individuals to this poison varies very greatly; many persons apparently suffer no inconvenience, although

subjected to precisely the same exposure which proves fatal to others.

One of the most striking cases of extreme susceptibility to this species of poisoning which has come to the knowledge of your committee, is the following:

A man aged thirty-five, who was a house-servant in the city at the time of his sickness, had never been exposed to the influence of lead, as far as could be ascertained, previous to entering his place of service.

He was employed by a private family, consisting of persons both older and younger than himself, and who had drank the water through the lead pipe for several years, in fact, ever since the introduction of the water into the city, without the slightest apparent injury. The man referred to was from the country, and perfectly healthy and strong upon his arrival in the city. He was a fleshy and robust man, and never had noticed any indications of paralysis.

He had been in his situation, as servant, exposed to lead poisoning in no other way than drinking the same water that the family used, only three months, before he was attacked with violent symptoms of lead paralysis, without the premonitory symptoms of colic.

He was *completely* paralyzed, excepting the muscles of respiration and the heart.

Even the muscles of the eyelids were useless, and the "blue line" upon the gums was apparent, which is the well known and usual attendant upon cases of lead poisoning.

Under treatment of iodide of potassium he completely recovered.

If such serious results *can* occur, is not the matter one worthy the attention of those who have in charge the public health.

The singular mode in which the lead is sometimes introduced into the system, also calls for care and watchfulness, to prevent the unknown and therefore unsuspected danger.

One of the members of your committee was called upon by a physician, who had a patient, a farmer, suffering apparently from lead poison, to make an analysis of some cider. From what source the lead was taken was a mystery. The water used by the family was all drawn by an old-fashioned "well sweep" and bucket; no possibility seemed to exist that lead *could* be the cause, and yet all the symptoms were those of a plainly marked case of lead-poisoning. The attending physician finally thought of the cider which the farmer was in the habit of drinking, and as a matter of extreme precaution decided to have a portion of it analyzed. From less than two quarts of that cider, metallic lead was obtained in substance sufficiently large to hold in the hand and prove its nature beyond question.

This caused an examination of the cask of cider, and, from the bottom of the cask, upon draining off the cider, was taken a pint bowl full of mixed sediment and white lead.

This, of course, readily accounted for the farmer's lead disease.

The cask used had formerly been filled with oil, and in putting it together the edges of the staves had been plentifully coated with lead, ground in oil before driving the hoops, to prevent the possibility of leakage; afterwards, when used for cider, the lead was dissolved out, and the serious consequences followed.

These instances, taken from many, are given to show that those who speak and feel warmly on this subject of lead-poisoning, do have some reason for their opinions and feelings.

We are aware that this is not strictly an adulteration, but, certainly, after all that has been said and written upon this subject, those who, being aware of the facts in the case, and who could avert the danger, go on deliberately using lead pipes for drinking waters, place themselves in the situation of the man who sets spring guns and gets shot himself. When lead pipes are used in preference because they are "cheaper" than gutta percha, block tin or iron, does not *this* constitute an adulteration of the water?

We are led to speak of this subject of lead water, perhaps going beyond the limits which the Association have laid down for our committee, by having met with, and known many instances where sad trouble has been produced by this often despised cause.

The next article we would ask your attention to is Milk:

During the past year it has been the duty of one of your committee to analyze a large number of specimens of milk. As many of you are aware, there exists a statute in some States regarding the sale of adulterated and unwholesome milk, and by virtue of that statute an Inspector of Milk is appointed by the authorities.

During the past year a large number of specimens have been analyzed, at the request of the Inspector of Milk for the city of Boston. With but one single exception, every specimen was found to be adulterated, many of them very largely.

The plan adopted has been to compare the amount of food contained in any milk examined, with that which, by the analysis of a very large number of specimens of pure cow's milk, was found to be the *average* amount. The amount of food being ascertained in any given specimen, it is easy, by comparison, to find the relative worth of the sample to the standard, and thus ascertain the dilution with water.

The amount of milk-sugar and salts was also estimated, and the difference between the weight of the milk started with, and the sum of the weights of the food, milk-sugar and salts, gave the weight of the water in any sample analyzed. The amount of water which any milk contained, was not made the basis of comparison at all; the addition of water to milk increases in a much larger degree the worth of the milk as a food-yielding fluid, than it increases the *percentage* amount of water, and as the amount of *food* really constitutes the value of the milk, the analysis were placed on this alone.

Water is the principal adulteration of milk; but to conceal this fraud and destroy the "skim milk" appearance, recourse must be had to several other adulterations, as the addition of coloring mat-

ter, salt, etc., to increase the weight and improve the flavor, both of which it does, the latter quite remarkably.

Sometimes poor milk, from cows that should not be milked at all, owing to their condition, is mixed with that sent to market. It is only by microscopical examination that this unwholesome and unclean milk can be detected. Specimens of this kind have been met with during the past year.

From the experience one of your committee has had, he does not hesitate to say that the adulteration of milk is largely and systematically carried on. Who can judge of the amount of sickness caused to children by the use of this unwholesome and oftentimes poisonous food—poisonous, because decomposition has already commenced!

Much of the sickness among young children, in many large cities, may be fairly attributed to the bad and unhealthy milk which they almost of necessity receive; and to the poorer classes, those less able by other reasons to contend with such a diet, the greater portion of this milk is given.

The milk oftentimes is not served to consumers until the second day after it is taken from the cow, owing to its being transported long distances, and, when diluted with water, the process of decomposition is much more rapidly set up.

The Local Treatment of Diphtheria.

The *Union Medicale* has recently published two letters from M M. Loiseau and Trousseau on the use of tannin and alum locally in the treatment of pharyngo-laryngeal diphtheria.

M. Loiseau, considering the false membranes, in all cases, to be but consequences of diphtheria, and, with the exception of croup, rather useful than injurious, provided their putrefaction be prevented, again lays stress upon the beneficial action of styptics, and especially tannin; these seem to convert the morbid secretions into an imputrescible epidermis, which affords protection to the denuded surfaces and promotes their cicatrization. M. Loiseau performs insufflation of alum five or six times a day, and of pure tannin, equally often; he states that a cure may thus be effected in three or four days, on the same principle, which M. Trousseau adopted in his practice in 1828. A quotation from an article published on the subject in 1833, by M. Trousseau in the *Dictionnaire Medical*, has elicited from the learned Professor a reply which we reproduce, as it explains the changes his views have undergone on the efficacy of the medical treatment of diphtheria, and more especially of croup.

"It is perfectly true," says M. Trousseau, at the date of September 20th, "that in the epidemics of diphtheria, which from 1818 to 1828 prevailed in the departments of Indre-et-Loire, Loir-et-Cher, and Loiret, the disease of the fauces readily yielded to

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frequent insufflation of alum, and to cauterization with muriatic acid or nitrate of silver. It is equally true that, when the complaint was met in its early stages, four or five days were sufficient to effect a cure, excepting, of course, when diphtheria had invaded the larynx.

"For ten years past, however, diphtheria has acquired in Paris and in the provinces a degree of gravity and of malignancy which it did not, by any means, possess thirty years ago; and I declare that it is now a long time since I have had the good fortune to see genuine pharyngeal diphtheria yield to treatment in four or five days. Common pseudo-membranous angina, or herpes of the fauces may be cured in twenty-four or forty-eight hours, but not real diphtheria such as we too frequently meet with.

"I resort to the same means as M. Loiseau and perform insufflation into the throat every two hours, and even every hour, if necessary, alternating the use of equal parts of sugar and alum or tannin. From time to time, I brush rather roughly the uvula and tonsils, before restoring to insufflation, in order that the medicinal agents may come into immediate contact with the mucous surface, and I consider myself very fortunate when, after ten days' treatment, all trace of false membranes has disappeared.

"In five adults whom, within the last few months, I attended with my friends Drs. Bernard, Patouillet and Blondeau, the disease lasted nine days in one case, and more than a fortnight in the others, and I repeat that it would have been utterly impossible to use with more persevering energy the remedies extolled by M. Loiseau, which I consider most useful, namely: alum and tannin.

"Appealing to the testimony of my learned colleagues of the Hospital for Infancy, M. M. Blache, Bouvier, Roger, See, and of Dr. Barthez, I find their statements are perfectly similar to mine, and that they agree with me in thinking that the singularly rapid, extraordinary and numerous cures effected by M. Loiseau may perhaps be accounted for by his not having allowed himself sufficient time to establish an incontrovertible diagnosis.

"It is difficult at first, and especially in children, to distinguish genuine diphtheria from pharyngeal herpes; and although in doubt I prescribe the local application of alum and tannin, I do not flatter myself that I have effected a cure of tonsillary diphtheriá when, after twenty-four hours, I cease to detect in the throat any pelicular concretions."

We are happy to be confirmed by so competent an authority, in the remarks we have offered above on the importance of diagnosis in the appreciation of the various remedies recommended for a disease the gravity of which, far from subsiding, seems rather on the increase, especially when observed in an epidemic form.

A DREARY PROSPECT.—The *Revue Contemporaine* publishes a very curious article, by Baron Ernouf, entitled "*De l' Appauvrissement du Sol et des Moyen d'y Remédier.*" Is it true that, owing to the gradual increase of population, the surface of the earth is

destined, in the course of ages, to refuse its aliment to the human race, and that a day will come when the sun shall shine on an unpeopled and desert globe? Such is the question asked by the author of the article—a question started by many eminent men since the commencement of the present century. It is a positive fact that, in consequence of the populous state of many countries which, during the middle ages, were but feebly peopled, it has become impossible to leave a large quantity of land alternately fallow for a certain time, until the soil has regained the phosphorus which, under different forms, it has yielded to the grain so necessary to the sustenance of man. It is equally true that the manure spread over the fields is insufficient to renew the supply of phosphorus; and that countries, like Mesopotamia for instance, which in the olden time were remarkable for their fertility, have since been transformed into deserts. Nor can it be denied that in taking food we absorb an enormous quantity of the fertilizing element—phosphorus—in order to build up and repair our osseous system, which is almost exclusively composed of phosphate of lime. Did we, on quitting this sublunary abode, restore to the earth what we received from it, the loss to the community would be comparatively small; but this is what we do not; our dead are enclosed within stone vaults or impenetrable coffins, and thus out of filial piety or respect for the dead in general, we are induced to withhold from our mother earth that very nutriment which she is so much in want of to feed us, while we multiply in nearly a geometrical ratio, and go on drawing upon her resources until she must be reduced in the end to a state of hopeless barrenness. And what is then to become of the human race? Will it have to live upon fish, or will anthropophagy be its last resort? To these dismal presentiments, the accomplishment of which we may comfortably view from the convenient distance of many centuries, Baron Ernouf replies by pointing out that from the moment chemists discovered that the great agent of fertilization is phosphorus under various forms, the problem may be considered in a great measure solved, since it is reduced to the simple condition of providing that great agent. Among the chief remedies against any deficiency in the natural supply, there are the importation of guano and the application of mineral phosphates to agricultural purposes; and, before these fail, other sources will undoubtedly be discovered by science. To these reflections of our author we may add that increase of population is invariably regulated by the means of existence, and that, whenever there is any danger of an excess of the former, Nature, applies a corrective in the form of some pestilence or other great calamity; even when men themselves do not, following their instincts, either destroy each other in battle, or drain off the surplus by emigration. These, history itself shows, are quite as natural checks, (though apparently of a political nature), as those alluded to which are independent of our will.

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A Learned Oculist.—M. Sichel is one of the most celebrated ophthalmologists of his day. His professional works are well known: "Traité de l'Ophthalmie," etc., his "Memoir sur le Glaucoma," his clinical lectures "Sur les Lunettes," and a vast number of other publications in Medical journals. We hear also of numerous precious *opuscules* still unedited, and of materials collected for a Complete History of Ophthalmology. To study the ancient authors, M. Sichel has made himself master of Arabic. Then we have that splendid work, "L'Iconographie Ophthalmologique," wherein art and science are equally highly developed, and to the completion of which its author has consecrated thirty years of his life and a portion of his patrimony. You have also heard of his passion for entomology. Who has not seen him on Sunday, rushing along the Chausee d'Antin, escaping from his eight or ten hours a-day of consultation, a green box under his arm, and a little net in his hands, running to the railroad like a school boy, in order to ply his entomological skill in the charming woods of Ville d'Avray? All the world knows that he is as skilled an entomologist as he is an oculist. But what, perhaps, you do not know, is that M. Sichel, Doctor of Medicine, of Surgery, and Philosophy, Licentiate of Letters, Member of a crowd of Academies and learned Societies, decorated with endless orders, etc. etc., is a Latinist, an Hellenist of the first order, and a consummate archæologist. His work on "Les Cachets Oculistique Romains," is well known. His researches on "La Dèesse Angérone et le culte Secret de Venus chez les Romains," made a great noise when they appeared in 1846 and 1847. Then again Medical literature owes to him the publication, with French translation, commentaries, etc., of a Greek poem previously left in MS. in the Bibliotheque de Paris. Now we find him coming forward to undertake, at M. Litre's request, the arduous and difficult task of reviewing, translating, and commenting, the Greek text of Hippocrates On Vision, for publication in the ninth volume of the works of Hippocrates, which have been for so many years in the course of publication by the learned Academician. Few people have an idea of the labor undergone by M. Sichel in accomplishing his review of these five or six pages of the Treatise of Hippocrates on Vision. He has had to compare time after time, and word by word, eight Greek MSS. in our Bibliotheques, one MS. in the Bibliotheque Medico-Laurentine of Florence, three others in Venice and Copenhagen, the variations of two MSS. in the Library of St. Marc, at Venice, the MS. notes added by James Cornarius to his Aldine copy of Hippocrates; to consult two Arab MSS. in the Bodleian Library at Oxford, erroneously considered as a version of the "Book on Vision," and found by the learned oculist, to his great disappointment, to be merely an Arab treatise on Diseases of the Eye, to which the author, who is unknown, has thought fit to attach the name of the Physician of Cos. He has had to review all the editions of Hippocrates from 1526 to the present time—more than a dozen; to divide the work into chapters; explain the most important parts;

to run through Mercuriali, Haller, Gruner, Fabricius, Jugler, Kuhn, Dezcimeris, Andreæ, etc., all of whom deny that this treatise was written by Hippocrates; and lastly to translate into French these memorable pages, where for the first time we find the rational treatment of granulations of the eyelids laid down. M. Sichel has developed himself thoroughly in this work. He is, indeed, a man for whom the tumult and amusements of the world have no attractions, who passes his life between medicine, the study of natural sciences, and the cultivation of letters; and who, so far from seeking to increase his practice, does all he can to limit it.—*L'Union Med.*

New York Academy of Medicine—Stated Meeting, Dec. 8, 1860.

Dr. Squibb read a paper on Medical Metrology, of which we give the following abstract: The confusion existing in the use of weights of the same name but different value, as in the case of the troy and avoirdupois pounds and ounces—the necessity of pharmaceutists keeping both sets, the one to buy and sell by, the other to compound by—and the failure on the part of the medical profession in its attempt to enforce the provisions of the Pharmacopœia in the use of the troy pound and ounce, were given as the primary circumstances which render a change in the present system necessary. This change, though imperative in the practice of making preparations for prescription uses, is by no means so much needed in prescribing and compounding prescriptions, for although pharmaceutists generally fail to supply themselves with the troy ounces, and therefore use the 9 per cent. smaller avoirdupois ounce in making tinctures, etc., yet they always have the divisions of the troy ounce from two drachms downward, for prescription uses. Tinctures of opium, cinchona, etc., are therefore commonly made by the use of the avoirdupois or small ounce. The measure of the menstruum, however, which governs the quantity of the resulting preparation, being taken correctly, because there is no confusion in this respect except that which arises from the commonly incorrect graduation of the measures, the resulting preparation will be deficient in medicinal strength just in proportion as the avoirdupois ounce is lighter than the ounce intended by the Pharmacopœia, namely, 9 per cent. But when these tinctures come to be used in prescription, they are used as being of full strength. The practical difficulties to be overcome in the change are, first, the necessity for two sets of weights of different value, and secondly, the use of the smaller weights where larger are intended. The use of avoirdupois weights cannot be prevented nor controlled because it is the common legal commercial usage.

The Council of Medical Education and Registration of Great Britain, in performing that part of its duties which consisted in consolidating and revising the British Pharmacopœias, has adopted

a change by which the troy weights are altogether abandoned, and the common avoirdupois weights are substituted for them. But as the avoirdupois ounce was not well adapted to medical use because it contains a fraction of a grain (437½ grains) and because it is not capable of being divided without still more troublesome fractions (as 218¾ grains, 109⅜ grains, 54$\frac{11}{16}$ grains,) it was decided to adopt a new division of this ounce, corresponding in names and numbers with the established apothecaries' division of the troy ounce, namely to divide the avoirdupois ounce into 480 parts to be called grains, 20 of these to make a scruple, and 60 a drachm, thus making a new drachm, scruple, and grain, of different and inferior value to the old one. The value of the new drachm in old grains is nearly fifty-five grains, and the grain is 91145 of the old grain. This plan is stated to accomplish the primary object in view in a simple way easily understood, but to be liable to many serious disadvantages, particularly its use in this country. First, it makes a radical change and increased confusion, which reaches even to the practice of prescribing and compounding prescriptions, where it was not absolutely required, and yet does not attain to the advantages or perfection of the French metrical system; whilst this latter system is so rapidly becoming universal, with advantages so pre-eminent, that it is on all hands confidently looked upon as the system to be adopted by all at a no very distant day. Another grave disadvantage for our use is that it could no more be enforced upon our pharmaceutists than the present troy system, while it involves the necessity of more new weights, and setting aside of old ones. The result of its adoption here would probably be similar to the present result in the instance of the troy weights. Some would buy them and others would not, and the present confusion would consequently be increased. Another disadvantage would be in its illegality here, and the liability to meet with resistance from the law, since to create a new grain of a value inferior to that of the legal standard would probably involve the same principle and same penalty, though not done with the same object, as the creation of a gallon measure to be so called, but to be only 7½ pints. It is nevertheless highly desirable, in view of our common language, literature, and practice, that our Pharmacopœia and professional usages should be as far as practicable uniform with those of Great Britain. They have made their change without the slightest reference to our wants or abilites, and we are now forced to adopt their change, or to sacrifice the important advantages of uniformity. In order to obtain an unbiased expression of the judgment of the Academy as to whether the advantages to accrue from uniformity were sufficient to counterbalance the disadvantages of the system as applied to the neeessities of this country, the writer of the paper then introduced a preamble and resolutions as follows:

Whereas, This Academy recognises the expediency of making some change in medical metrology whereby the materia medica may be better secured against the effects of the common disregard of the present troy weights of the Pharmacopœia; and whereas,

it is understood that the Committee of Final Revision and Publication of the Pharmacopœia has not yet taken action upon this subject, therefore

Resolved, That this Academy offers its judgment upon the subject, as a voluntary contribution to the Committee of Final Revision and Publication of the Pharmacopœia, with a view to aid that Committee in arriving at the best results that may be in its judgment practically attainable.

Resolved, That it is the judgment of this Academy that the change recently adopted for the consolidated British Pharmacopœia, is the best that can at present be suggested, and that in view of a desirable uniformity with the British Pharmacopœia this change is recommended for adoption in the United States Pharmacopœia.

After an apparent general concurrence in the preamble and first resolution, and a few remarks upon the second resolution, the Academy did not appear to be willing to adopt it against the disadvantages enumerated, at least until after the matter should lie over until the next meeting. The writer of the paper then stated that in the event of the Academy being unwilling to adopt this resolution, and desiring to go further into the subject in its various bearings, he had prepared some account of another change, which he proposed as a substitute for the British change, but which he had not proposed to present until some definite action was taken upon the resolution, since he feared that any views likely to be held by a single individual might be one-sided or partial, and might confuse, if they did not prejudice, the action of the Academy upon the resolution. The remainder of the paper, proposing the substitute, was, however, directed to be read, in order that the Academy might have the whole subject before it at once.

The proposed substitute was, first, that the present table of weights and measures of the Pharmacopœia be continued undisturbed, but be restricted to prescription uses alone; and that the French table of weights and measures, and also a compound table showing the equivalent values of the two tables, be added to this department of the Pharmacopœia. This is for the purpose of affording an authoritative reference for the comparative value of the French denominations, and to familiarize physicians and pharmaceutists with the French system and its values, in view of its ultimate adoption. Secondly, to abandon the use of absolute and arbitrary weights altogether in the formulas and processes of the Pharmacopœia, and to substitute the term parts, to mean parts by any weight whatever. The primary object of all processes for compounding medicinal preparations is to preserve an invariable ratio among the ingredients and elements of the mixture; and as arbitrary weights are used chiefly to express these ratios, they become accurate and useful only in proportion as they agree among themselves. Then as the present weights do not agree among themselves, whilst the term parts is invariable, this change must

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accomplish the object in view, and that without adding anything to the existing confusion among arbitrary weights;—without making any radical change whereby new values to old terms have to be learned;—without revolutionizing the prescription usages or practice where immediate change is not imperatively needed;—without interfering with doses or effects in any way;—without any risk of conflict with law or established usages;—and without involving the least necessity for new weights or appliances of any kind, since any possible system of weights is equally applicable. Two or three advantages of this method are alluded to and discussed without hiding their true force and value, and the conclusion is then arrived at that this is the most simple and easy change that the writer can suggest; but this judgment is advanced as that of a single individual only, and without the least desire to bias or control any one, beyond the legitimate influence of the arguments, and the truth. The paper closed with the request that as far as the proposed substitute is concerned the subject may be left entirely open to the unbiased action of the Committee of Revision, and that the Academy agree unconditionally to abide by the result of the decision of that committee, no matter what that decision may be.

In the discussion which followed the paper there appeared to be a unanimous sentiment in favor of the proposed substitute, and the second resolution, on being put to vote, received but one affirmative voice, whilst the negative votes were very general. The judgment of the Academy is very decidedly opposed to the adoption of the British change, and decidedly favorable to the proposed substitute.

Bibliographical Notices and Reviews.

The Principles and Practice of Modern Surgery. By ROBERT DRUITT, Licentiate of the Royal College of Physicians, London, Fellow of the Royal Medical and Chirurgical Society of the Medical Society, London, etc., etc. A new and revised American from the English (enlarged and improved) London edition, with four hundred and thirty-two illustrations. Philadelphia: Blanchard & Lea, 1860. pp. 695.

This work, which has been a great favorite with medical students and also with physicians on this side of the Atlantic, has been very carefully revised by the author. He tells us that he has endeavored throughout to replace old and doubtful by new and more certain materials, and the additions have been so blended and

incorporated in this edition that its bulk has only been increased some thirty pages over the former one.

The chapter on Inflammation in the present edition is entirely new. Pyæmia and Phlegmatia Dolens are removed from the chapter on the veins, and are treated of in their natural alliance with Erysipelas and Diffused Inflammation. The use of caustic in the treatment of Cancer has been considered very carefully. The chapter on Gun-shot wounds has been entirely re-written, and very much enlarged, from new materials placed at the author's disposal by Mr. George Lawson. The treatment of Anchylosis by forcible extension, and of Syphilis by Fumigation; the recent improvements in Ovariotomy and in Vesico-Vaginal Fistula; the radical cure of Hernia; the use of Chloroform, and the deadly results occasionally of its administration the Excision of the knee-joint—have received due notice.

The edition before us contains a few notes by an American Surgeon, which are included in brackets. The notes of the former editors, Dr. Flint and Dr. Sargent have been included in the text.

The reader will find the former designation of the work—"The Surgeon's Vade Mecum"—no longer applicable. The title—"Principles and Practice of Surgery"—is now better—much more appropriate.

The Pocket Anatomist: Being a complete description of the Anatomy of the Human Body. For the use of Students. By M. W. Hilles, formerly Lecturer on Anatomy and Physiology at the Westminster Hospital School of Medicine. Philadelphia: Lindsay & Blackiston, 1860. 12mo.

The author has endeavored to produce, what we will venture to say he has succeeded in producing, a little book, which will be acceptable to the student preparing for his examination, and wishing a compend of his anatomical studies convenient for consultation, and sufficiently explicit to refreshen his memory of the more elaborate treatises.

While attending a course of lectures, for instance, and pressed for time to read up in the more complete works on Anatomy, a book like the one before us will be of peculiar advantage. The descriptions are brief, terse and clear, and the *mechanical* part of the book neatly executed. B.

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Clinical Lectures on the Principles and Practice of Medicine. By JNO. HUGHES BENNET, M.D., F.R.S.E., Professor of the Institutes of Medicine, and Senior Professor of Clinical Medicine in the University of Edinburgh, etc., etc. From the last Edinburgh Edition, with five hundred Illustrations on Wood. New York: Samuel S. & William Wood, 1860. pp. 952. 8vo.

The profession are under obligation to the house of S. S & Wm. Wood, N. Y., for the appearance, in a very neat dress, of the work before us.

Our readers are acquainted with the doctrines of the author on inflammation (pathology and treatment), and as we have expressed not long since our views on kindred subjects, we shall not now indulge in anything like a criticism. Until the author is able to define inflammation, it is simply nonsense for him to attempt to base any kind of treatment on the nature of the process. Tell us what it is—*what it is not*—and then we will hear talk on the treatment. In the mean time, the empyrical method, in vogue since Hippocrates, will be the method of sensible men all over the world.

The author's peculiar view on the subject to which we have just alluded aside, the volume before us is one of merit. The style is decidedly Anglo-Saxon, and the arrangement of materials, philosophical. The work contains, perhaps, the greatest array of resources for diagnosis of any treatise of the kind in the English language. Besides the usual modes of investigating disease, Microscopy and Chemistry are not only invoked, but their application fully explained. It is unnecessary to suggest that these new modes, so available, imply upon the part of the physician acquaintance with the microscope and chemistry. Take the following from the work on the

USE OF THE MICROSCOPE.

A knowledge of the ultimate structure of the human body, in its healthy and diseased conditions, is now so advanced as to necessitate the introduction of the microscope among the ordinary instruments of the medical practitioner. But you must not suppose that an additional method of gaining information implies abandonment of those, the utility of which has stood the test of experience. Men must learn the every-day use of their senses; must know how to feel, hear, and see, in the same manner as they did before instruments were invented. We don't see the stars less clearly with our naked sight, because the telescope is necessary for an astronomer. Neither should a physician observe the symptoms of a disease less accurately because he examines the chest with a stethoscope, or a surgeon be less dexterous with the knife, because it is only by means of the microscope he can determine with exactitude the nature of a tumor. But it is unnecessary to enter into a lengthened argument to prove that the science and art of medicine are greatly indebted, in modern times, to the invention and proper

application of ingenious instruments. The following examples will serve to convince you that the microscope is one of these:—

Example 1.—Some years ago I was summoned to see a Dispensary patient laboring under bronchitis, who was spitting florid blood. On examining the sputum with a microscope, I found that the colored blood corpuscles were those of a bird. On my telling her she had mixed a bird's blood with the expectoration, her astonishment was unbounded, and she confessed that she had done so for the purpose of imposition.

Example 2.—A gentleman, for some years, had labored under a variety of anomalous symptoms, referable to the head and digestive systems, under which he had become greatly reduced. He had consulted many practitioners, and visited innumerable watering places, in a vain search after health. On examining the urine with a microscope, I found it crowded with spermatozoa. He evidently labored under spermatorrhœa, a disease which had never been suspected, but which was readily cured on the employment of an appropriate treatment.

Example 3.—A boy was brought to me with an eruption on the scalp, which was of so indefinite a character that its nature could not be determined. He had lately been elected to occupy a vacancy in one of our charitable educational establishments, and the question to decide was, whether the disease was or was not contagious. On examining the scab with a microscope, I readily discovered the *Achorion Schoenleini*, or fungus constituting true favus; and as this has been experimentally proved to be inoculable, I had no hesitation in preventing his admission to the school.

Example 4.—A child was supposed to be effected with worms, because it passed in abundance yellowish shreds, which, to the naked eye, closely resembled ascarides. All kinds of vermifuge remedies had been tried in vain. On examining the shreds with a microscope, I found them to consist of the undigested spiral vessels of plants; and they ceased to appear when the vegetable broth used as food was abandoned.

Example 5.—I was called to see an infant a month old, which was in a state of considerable emaciation, with constant diarrhœa. The mother, however, maintained that her milk was abundant, and that it was taken in sufficient quantity. On being examined with a microscope, it was found to contain numerous compound granular bodies, and comparatively few milk globules. In short, it presented, in an exaggerated degree, all the characters of colostrum, and this thirty days after delivery. It was evident, then, that the *quality* of the milk was in fault, an opinion which was confirmed by the recovery of the infant, when a healthy nurse was procured.

Example 6.—An individual was supposed to be laboring under dysentery, from the frequent passage of yellowish pulpy masses in the stools, accompanied with tormina and other symptoms. On examining these masses with the microscope, I found them to consist of undigested potato skins. On inquiry, it was ascertained that this person had eaten the skins with the potatoes. On causing these to be removed before dinner, the alarming appearance ceased, and the other symptoms also disappeared.

Example 7.—An elderly lady conceived herself to be affected with insects constantly forming in the skin, which produced incessant itching and tingling. All the hair was removed, and every kind of application, including mercurial preparations, was tried without effect. On rubbing the surface, she always saw minute white rolls and black specks, which she regarded as insects in different stages of development. The torment and anxiety this caused her for many months it is scarcely possible to conceive. At length she labored under the idea that she was communicating the disease to her husband and daughter, when, at the request of her medical attendant in the west of Scotland, she came to Edinburgh, in order that I might investigate and treat it. I had the pleasure of shewing this lady, under the microscope, that the white bodies were minute rolls of epidermis or of the cotton cloth with which she rubbed the skin, and that the black specks were portions of dust or soot. Her hallucination being in this way dissipated, she returned home perfectly well.

Example 8.—A child had been suffering for four years from copious and fœtid discharge from the nostrils, accompanied with great pain. At the end of that time, a dark brown and indurated mass was discharged, about an inch long, and a quarter of an inch broad, closely resembling a sequestrum of bone. This

mass I was requested to examine microscopically by Dr. Littlejohn, under whose care the patient was, and from its structure I readily determined that it consisted of some fir wood. When this was known, the parents remembered that, about the time the disease commenced, alterations were made in the house, and that the children used to play with the wood shavings. There could be little doubt that a piece of shaving had been thrust up the nose, and been the cause of all the symptoms.

Examples of this kind could be readily multiplied. No doubt mistakes will be made with this instrument in the hands of inexperienced persons, in the same manner as the use of the stethoscope, or of a scalpel, may lead to a false conclusion, or to an accident. But this, so far from being an argument opposed to their employment, only proves the necessity of becoming more skilful in their use. Certainly there is no instrument which requires more expert management in itself, or more caution in drawing conclusions from its employment, than the microscope.

A Treatise on Fever: Its Causes, Phenomena and Treatment, with an Appendix containing Views on some Female Diseases, some Diseases of Children, etc. By REZEN THOMPSON, M.D., Nashville, Tenn. 1860.

The time for a thorough review of this indigenous work on a very important class of diseases we have not at our command just now. The author is a thinker, and more, he thinks for himself. While his fellow-townsman, Paul F. Eve, has to rummage all creation, in order to get up a book on "Strange Cases of Surgery," our author possesses mostly within himself the material for one on Fever.

All fevers of a malarial or contagious character the author thinks are caused by *animalcules* which enter the circulation through the lungs, and finally arriving at the nervous centres, produce the effect of narcotic poison.

In these microscopic times, will not the author take his views entirely out of the domain of theory? Will he not send around to his friends a few "*slides*," after a while, giving us a glimpse of the mischievous little enemies that cause us so much trouble and suffering. This, we have a kind of inspiration, if his days are spared, he will do. After this, how could opponents hold up their heads?

The remedy for these fevers has been found: it is *oil of sassafras*. It has been tried on insects and on infusoria, killing both with equal facility. Of course, it will kill the infusoria that swim about in the blood, quartering themselves, as opportunities present, on the weak points, and following a regular cut-throat pursuit for a livelihood. What consciences must they have!

By observing the caption, it will be noticed that a portion of the volume is devoted to the consideration of "FEMALE Diseases." We

are sorry our time is just now so limited; we should like to look into these *female* diseases.

In conclusion, we should do injustice to our feelings not to acknowledge very frankly, that Dr. Thompson's example for industry is worthy of praise, and, although the mental hebitude of the age may be such as to keep his work on Fever a little below the fashionable ones of the day, still his day may be nearer than some suppose.

Clinical Lectures on Certain Acute Diseases. By ROBERT BENTLEY TODD, M.D., F.R.S., Author of Lectures on Diseases of Urinary Organs, etc., etc. Philadelphia: Blanchard & Lea. 1860.

As in the previous number of the Journal we have dwelt at some length on doctrines, of which this work presents an example, we do not see the necessity, at present, of a further examination of them. The author sums up his conclusions of the volume in the following propositions:—

"1. That the notion so long prevalent in the schools, that acute diseases can be prevented or cured by means which depress and reduce vital and nervous power, is fallacious.

"2. That acute disease is not curable by any form of drug or any known remedial agent, excepting when it is capable of acting as an antidote, or of neutralizing a poison, on the presence of which in the system the disease may depend (materies morbi).

"3. Disease is cured by natural processes, to promote which in their full vigor vital power must be upheld. Remedies which, in the shape of drugs, exercise a special physiological influence on the system, or in whatever form, are useful only so far as they may excite, assist or promote these natural curative processes.

"4. That it should be the aim of the physician to inquire minutely into the intimate nature of these curative processes (physiological), to discover the best means of assisting them, to search for antidotes for morbid poisons, and to ascertain the best and most convenient means of upholding vital power."

The author in the Preface thinks we may dispense with the distinctions of disease into *asthenic* and *sthenic*, and that all diseases may be regarded, for all practical purposes, as *asthenic*, and treated by means designed to uphold vital power,—sustaining, stengthening medicines.

We notice a disposition in the author to review and criticise to some extent the doctrines of pathology. Too much importance he thinks has heretofore been awarded to morbid anatomy, and too little to clinical history and the facts and phenomena of disease during life. The author observes:—

"The following problem lies at the root of the pathology of acute disease, and it has never yet received an adequate explanation, and is uniformly ignored by the zealous advocates of the so-called anti-phlogistic method.

"A man has a patch of pneumonia in the base of his left lung, brought on, he conjectures, by some exposure to cold. Why is it in his left lung? why at the base rather than the apex? how is it limited to a certain patch? In other words, what is the proximate cause of this localized derangement of nutrition?"

We presume we have quoted enough for the reader to see of what the volume is composed, and also to see the relation sustained to the doctrines of Forbes, Bennet, Bigelow, Holmes, etc. It will be a good while before the profession will be convinced that there is no difference between *acute* and *chronic* diseases, and that they are amenable to the same kind of treatment. Nor will they be less slow, we presume, to dwarf the department of morbid anatomy.

The questions, why a pneumonia should prefer the left lung, and the base rather than the apex, no one can answer of course; but should our ignorance here be summoned as an evidence that there is nothing in morbid anatomy? and that our modes of investigating the proximate causes of disease are radically defective? Why don't the sun rise in the West? Now, because this question can't be answered, does it follow that our methods of investigating astronomy are all wrong?

The author before us was a very industrious man, and when he confined himself to questions and researches to which by capacity he was adapted, his services were valuable and fully appreciated. Out, however, in the fields of speculation, he has exhibited himself to but little advantage. All the questions he has raised are old ones, varnished over a little, "jist." Forbes is the *tweedledum*, and our author is the *tweedledee*.

Editorial and Miscellaneous.

Prosecutions for Mal-Practice.

Sensible and intelligent physicians are supposed to appreciate the serious character and bearings of prosecutions for mal-practice. Primarily, a prosecution is a grave matter to him who is prosecuted. Even the idea of a formal imputation of derilection and incompetency carries with it a very pungent sting. The reputation of the physician or surgeon is his stock in trade. He cherishes it as beyond all price. He can bear the loss of property; he may be meagerly compensated for arduous labors and responsibilities; he can cheerfully live in obscurity, and suffer the inconveniencies, or even the pinchings of poverty; amidst all these he may be permitted to enjoy the consciousness of possessing such a reasonable degree of skill and devotion to the claims of the suffering as make him a useful member of society. But, make a formal and public attack upon this consciousness, even in a single instance; let it be extensively advertised that even an interested party, his patient, not only distrusts his skill, but has undertaken the contract of demonstrating the want of it to the satisfaction of twelve disinterested members of the community, and that there must, in the nature of things, be a public announcement of the result; do this, we say, and it is not difficult to see that the event, from its very inception, casts a long shadow upon the future, pregnant with fears, uncertainties, apprehensions, fearful forebodings. It is not time, nor business, nor money that is at stake—it is *reputation—it is everything*. Accordingly, a prosecution is very naturally, if not even properly regarded, at least till the sequel is known and read of all men, as the most serious matter that can happen to one's professional career. A successful suit, furthermore, is attended with more or less of hazard to the profession at large. The public knowledge of a verdict for the prosecution will beget a brood of new cases, in which, quite as likely as otherwise, the most skillful and diligent of the profession will be the victims. Some three years since, an item floated largely through the newspapers, to the effect that a jury, in the State of Illinois, had found a verdict for $50,000 against a wealthy quack, for mal-practice. In making up

their verdict, they made an estimate of what he was worth, and divided it equally between him and his patient. We have not a particle of doubt but many an unprincipled person, reading that item, dreamed of a new and easy road to wealth, in certain contingencies. In fact, demonstrations were made within the sphere of our own personal observation, that we had every reason to suppose had their *fons et origo* in that paragraph.

When it is borne in mind that, with the public, doctors are doctors—that they are all put up in the same parcel, and designated by the same label—it is easy to perceive that even the misfortune of the veryest pretender, is, to a very considerable extent, a calamity to the skillful and accomplished. Such being the facts, it is obvious that every aspect of the subject should receive the careful and candid attention of the profession.

We are in possession of facts that do not allow us to doubt but that, from first to last, there have been in Ohio more than two hundred of these prosecutions. Why is it that they are so frequent? In undertaking to answer that question, it should be premised, in the outset, that a large majority of these suits originate from alleged mal-practice in the treatment of fractures and dislocations. In the popular mind, this department of practice is merely mechanical. Most persons have some knowledge of the precision and certainty which ordinarily attend mechanical operations. When the farmer breaks a spoke of his wagon, his wagon-maker replaces it with one as good as the original; when a single cog is broken in a single wheel of a complicated machine, the exact site, extent and character of the injury are at once discovered, and the materials, mode of construction, etc., are such that a workman of ordinary skill can at once remedy the difficulty, if it is remediable, or decide the question if it is not, and the circumstances and considerations bearing upon the determination of the question are such that there can scarcely be room for difference of opinion as to the general course of procedure.

The popular mind, perceiving all this in ordinary mechanics, and assuming that the duties of the surgeon are of a kindred character, is disposed to hold surgeons to accountability for failing to attain their ideal of mechanical results. Their reasoning is based upon a false assumption. The human body is not a mere machine. It is a complicate and delicate organism. Its injuries do not necessarily lie open to the sight. The broken or dislocated bone, quite as likely as otherwise, is deeply imbedded in soft parts, which

remove them from the operation of our senses. We can't take the material we are dealing with to pieces, as the workman does the watch. The character of the injury, accordingly, can only be made out by facts and considerations which in their details bear only upon the single case in hand; and these are frequently so occult, and consequently so difficult of appreciation, that, to start with, no earthly wisdom is competent to make out the precise character of the injury. The uncertainty that characterizes the diagnosis, attaches to the treatment, and of course to the result.

In addition to all this, although, in the treatment of a fracture, for instance, mechanical appliances are used, yet it is to be borne in mind that the surgeon is only one party to such use; that the attendants, but especially the patient, is another; that though the application of mechanical support may be ever so skillful, yet without co-operation by the party of the second part, it will necessarily fail, to a greater or less extent, in the purpose for which it is used.

It is possible, too, that not only the public, but at least individuals in the profession, have not arisen to a full conception of all that we undertake to do, in the use of our dressings. Take the case of a powerful man, with a simple but very oblique fracture of the femur. Grasping the lower part of such a limb, a man of full strength will find all his resources brought into requisition in undertaking to pull it down to its full length. He now puts on say the long splint, and the arrangement finally amounts to about this: that an amount of extension, equal to the strength of a powerful man, must be borne by some point, perhaps the instep, the entire area of such part, thus supporting such extension, not being equal to more than from five to ten square inches, while a more delicate but otherwise more favorably situated surface, a portion of the perineum, is called upon to sustain the counter-extension, which, of course, must be equal to the extension. The tonic contractility of the muscles, that makes a powerful effort necessary in bringing the limb to its full length, belongs inherently to them, and is permanent. Hence, if shortening is prevented, this pressure must be borne by these surfaces, with gradually diminishing intensity, however, for from 40 to 50 days. Every man who has had a personal experience in bearing the pressure of a strong truss, equal to a very few pounds, on two or three square inches, favorably situated for bearing it, will want to be excused from having his obliquely fractured femur kept full length, for three hours even,

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by any such means. The tension of dressings required to maintain the full length of the limb, will prove wholly intolerable. It is impossible to give full play to our mechanical appliances. If we should keep our splints applied with a degree of tension such as is indispensably necessary to our maintaining the full length of the limb, and consequently to our securing a perfect result, we would probably cause such local and constitutional disaster as would result in the death of the patient within the period of cure. Hence, considering the treatment of such a case in a merely mechanical point of view, we see that it is impossible for us to secure the co-operation of the patient, and that we are obliged to compromise the matter, and endeavor to reconcile our own minds, and that of our patient, to the attainment of imperfect results.

Another source of these prosecutions, in the class of cases in which they are most liable to occur, has hitherto been found in the absence of everything like a tangible and reliable standard of practical results. Till very recently but very little was to be found, in even our best text-books, that was calculated to lead either the student or the practitioner to expect anything but perfect limbs from proper treatment. And, hence, although the personal observations and experience of individuals is supposed to have been sufficient to give them sufficiently humble estimates of their own success; yet the circumstances have been such as to tend to lead the humiliated practitioner to suspect that he was less skillful than others, and to concede imperfections, as belonging to himself, which attached rather to surgery than to the surgeon. In this state of mind, it is easy to conceive that threats of prosecution would have great influence. Regarding the practice as imperfect, the practitioner would very naturally dread being held to a strict accountability for it. This misgiving in the mind of practitioners has been the prolific source of those compromises, which, in their turn, have been the prolific source of new threats, and new difficulties in other cases. Here, too, is found the secret of that success which formerly attended these prosecutions. The professional mind erred in conceding to surgery a degree of perfection which it did not possess.

In reference to all this, however, a new epoch has dawned upon the profession. The results following the treatment of fracture and dislocation have been carefully studied. We now have a tangible and reliable standard of them. It is thus abundantly de-

monstrated that, in whatever hands, under whatever plan of treatment, and despite whatever degree of skill, *imperfection* is the rule, and that *perfection* is a rare exception: that there are imperfections in *surgery*, as well as in *surgeons*, and that while members of the profession have no right to complain that they are held responsible for an ordinary degree of skill and diligence in the discharge of the duties devolving upon the latter, they are quite disposed to excuse themselves from assuming the long bill of disasters that necessarily, and in spite of their best endeavors, whether in preparation or practice, grow out of, and are inseparable from the former.

Still another source of these annoyances is to be found in the legal profession. The knowledge which the great body of the legal profession have of surgical topics is, necessarily, exceedingly slight. They imbibe the popular errors as to what should be required of the surgeon. Seeing an imperfect result, they are very apt to attribute it at once to the want of skill on the part of the surgeon. While thus, in connection with other circumstances, the most honorable of the profession, from the purest motives, and from a sense of professional duty, may be led to connect themselves with these cases, there is in the legal, as in other professions, a greater or less proportion of unscrupulous men, who would not for a moment hesitate to instigate a prosecution, with very little regard to anything but the *fee* that is to accrue to themselves. It has seemed to us, withal, that even the better class of lawyers were quite too inconsiderate in reference to taking these cases. Certainly, if they reflect upon the circumstances of some of them, as shown by the sequel, they cannot derive that kind of gratification from the exercise that is supposed to be very precious to a thoroughly honorable mind. Take a case: A worthy, honest, devoted and competent surgeon, diligently and conscientiously treats a worthless member of the community for a fractured limb. In managing the case he is obliged to contend with the ignorance, poverty, and obstinacy of his patient as well as he can. In spite of all this he attains a fair result. But the character of the case is such that, in spite of his anxious and earnest endeavors, deformity more or less follows, perhaps also impaired usefulness. As a substitute for a compensation, which, under no circumstances did he intend to render, instead of evincing an ordinary degree of gratitude to the surgeon for his skillful services, by which limb and life are pre-

served, he embraces every opportunity to disparage him and them by making exhibition of his deformity, and by every other available means. A very large proportion of the legal profession, perhaps nine-tenths of those who are not swayed by the expectation of a fee for the defense, would, partly, perhaps, from the habit of taking cases with no special regard to their merit, mainly from the consideration that glitters in the distance, without hesitation engage themselves to this man, to prosecute this surgeon in these circumstances. And what is the lawyer's part of the engagement? It is not to assist an ingrate in the act of *robbing his benefactor.* By no means. The procedure is not usually known by that name. He simply engages himself, in the sacred name and forms of justice, to make a formal attack upon that which, to the surgeon and those who cluster about, love, and are dependent upon him, is far more precious than money—to *attack the reputation* of that surgeon, to pierce it through its vitals if need be—as a means of giving coloring of regularity, legality, and respectability to an act which, to be sure, the unsophisticated would very naturally call the act of robbing a benefactor, but which is more commonly known "as securing the claims of justice"—and a *fee.*

This, reader, is no fancy sketch. The details of at least a half dozen cases that have transpired, within our personal observation, have been almost detailed exemplifications.

But sometimes, we say it in sorrow, the influences which project unjust prosecutions center around, or originate in our own profession. Professional jealousy or envy is sometimes the starting point. We have seen a few, very few, such cases. Woe to him who has the responsibility. The sequel will, with unerring certainty, cover him with shame and disgrace.

While the cases in which professional hatred incites to active complicity are rare, it is believed that a want of cautiousness and consideration, criminal because of the serious effects liable to grow out of it, is very much more common. The high-minded and better class of lawyers rarely take these cases except on the basis of the known views of some one who is supposed to be a responsible surgeon. Here, then, is the pivotal point in the case. Greater responsibility is involved in giving an opinion, at this stage, than on the witness-stand under the solemnities of an oath. The surgeon should never, let the result of the practice be ever so unfortunate, give an opinion favoring a prosecution, in the absence of the

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attendant. He alone is competent to describe that practice and the reasons for it. Bad results, while they presume it, do not prove bad practice. The most skillful men, in spite of the utmost care, under the most promising circumstances, and with every extraneous co-operation, meet with disappointments and bad results. For this they are in no wise responsible. Mal-practice, in the purview of the law, is the absence of reasonable or ordinary skill and diligence. When these are brought to bear, let the result be ever so serious to the patient, the legal responsibility of the practitioner ends.

Such being our views, the reader will have some idea of the astonishment with which we read the following statement from a distinguished friend and professional brother. It was made in the absence of the attending surgeon, for the patient, and as a basis for action with reference to a prosecution. It is, accordingly, essentially a public document.

Statement of Prof. ——:

Bad job. Clear case of mal-practice. If it could not have been reduced, should have been amputated. Fracture-box, if well applied, is sometimes a good thing. If he left the case in the condition you are in to-day, it is a clear case of mal-practice as I ever saw. If this dislocation was ever reduced, it was the business of the surgeon to see him often, and see that it was kept to its place; and a competent surgeon would have known at once that it was displaced, and could and should have been reduced again. As long as there was danger of a renewed displacement, it would be practicable to reduce it. It is the surgeon's duty to see the case frequently, as long as it is susceptible of displacement.

If the fracture-box was well applied, and the limb supported in its place by the materials generally used with the fracture-box, no other support would have been required.

There is authority for the use of the fracture-box in such cases, but in my opinion it is not a safe mechanical appliance. I would have preferred splints, or starch bandage, or plaster-of-paris bandage.

Here we have, from a highly respectable authority, a practice characterized as a "bad job," "clear case of mal-practice," "clear case of mal-practice as I ever saw," in the absence of the only man on earth who was competent to tell what that practice was, with

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the reasons for it. Furthermore, the fracture-box, perhaps the most common of American appliances for the treatment of fractures, is spoken of as if it was hardly admissable—"in my opinion, it is not a safe mechanical appliance." "The competent surgeon would have known at once that it was displaced," etc., without regard to swelling, suppuration, erysipelas: and, finally, the gentleman "would have preferred splints, or starch bandage (for a compound dislocation of the ankle-joint), or plaster-of-paris bandage."

This extraordinary statement, as full of presumption as of errors, is in the hands of parties engaged in the prosecution of a respectable physician, and was given by its author, it is claimed, as the basis of the action. H.

DIPHTHERIA.—This disease continues to prevail in our City and in the vicinity. While the mild type continues to be the most common, grave cases are more frequent than during summer or autumn. The complications and sequelæ are also more common.

We do not feel like advancing any opinions on this epidemic at present. If it is not a new disease, it has been seen dimly by ancient authors. We therefore feel that any attempt to describe it fully just now will prove a failure. Any one can see its resemblances to certain affections, long described and well understood, but that it is any of these is a matter that can only be determined by a comparison of notes after its complete demonstration.

We have been written to for our views on *treatment*. We have only to say in reply, that we do not think our experience in the treatment of the disease worth any thing as a guide to others. There is a great variety of circumstances connected with each individual case that require to be appreciated; or in other words, each case has its own laws of treatment, and it is only by keeping this fact before the mind prominently that the physician can do the most for his patient. The journals abound in suggestions, from those who have had some experience, of plans of treatment, the antiphlogistic, the stimulating, the tonic, the detergent. Then again we hear much said, *pro* and *con*, with regard to *local* remedies. We are at a loss to see the propriety of any plan of treatment unless we know something of the case. *It is the case that makes the remedy.*

Hunter Memorial.

By a vote of the American Medical Association, passed at its late meeting at New Haven, a committee, of one from each State represented, were chosen to fulfill the object of the following resolution :—

"*Resolved*, That it be recommended to the different States to collect subscriptions of not more than *one dollar* each, from every regularly educated physician, to aid in the erection of a monument, about to be placed in Westminster Abbey, to the memory of John Hunter. All moneys collected to be forwarded to the chairman of the committee hereby appointed."

The subscriber was chosen for the State of Ohio, and, to give the subject general publicity, has requested the editors of the different medical journals in this State to publish this notice. Each regularly educated physician of this State, who admires the towering genius and indefatigable labors of Mr. Hunter, is respectfully solicited to forward, by mail, to me *one dollar*, with the name and residence legibly written with good ink, before the first of March, 1861. The autograph names of all donors will be arranged in a suitable volume, to be deposited in the Library of the Hunterian Museum in London.

In order to cary out more fully the preceding resolution, the editors of medical journals, secretaries of county or local medical societies, and other medical gentlemen in various parts of the State who have been furnished with circulars, are authorized to receive the donation of *one dollar* from each subscriber, with autograph names, and transmit the same to me before the first of March, 1861.

It is to be hoped that the profession will maintain, by a general subscription to this worthy object, the elevated position the State of Ohio occupies in our confederacy.

A correct list of donors will be found on the Secretary's table at the next annual meeting of the State Medical Society of Ohio.

JOHN W. RUSSELL.

Mount Vernon, O., *Nov.* 30th, 1860.

Reduction of a Dislocation at the Hip by Manipulation after Pulleys had Failed.—The practice of reducing dislocations of the femur at the hip by manipulation, instead of pulleys, is now generally adopted in our hospitals. Not a few cases, in

which this method has been found most easy and effectual, have occurred at the London Hospital during the last year or two. In one, the man had sustained a fracture of his leg on the same side, as well as the dislocation at the hip, and it was, therefore, especially desirable to avoid having recourse to violent traction. The leg having been first put up in splints, the thigh was bent and tilted outwards in the usual manner, and reduction was at once effected. A case occurred the other day at Guy's Hospital, which demonstrated the superiority of this method, inasmuch as pulleys had previously been tried without success. It also showed that the knowledge that this is the easiest method, is not as yet so widely diffused in the profession as it is desirable that it should be. The subject of the dislocation was a man, aged 38. He had fallen in wrestling, and his left femur had been displaced upon the dorsum ilii. Extension by means of pulleys had been tried without success before his admission into the hospital. Mr. Bryant, under whose care the man came, had him placed under the influence of chloroform, and at once succeeded by the manipulation method in reducing the dislocation. Very little force was found requisite.—*Med. Times and Gaz.*, Nov. 10, 1860.

Chronic Mammary Abscess.—Successful Treatment by Strapping, etc.—Chronic mammary abscess, or, as it is sometimes called, encysted abscess of the breast, is a disease of considerable interest, inasmuch as it is in itself a tedious and often painful affection, and, closely simulating other more serious diseases of the same part, has many times been mistaken for tumor of the breast. A good illustrative case is now under the care of Mr. Coulson, in St. Mary's Hospital:—

S. T——, aged twenty, single, a female servant, the history of whose affection dates back two years and a half. As is usually the case with chronic abscess at this site, its origin was unconnected with any acute lacteal inflammation, but arose without any distinct cause; it was attributed by the patient to cold. The first attack was aborted by prompt treatment. The nipple has remained retracted, and the breast subject to occasional attacks of painful swelling. A month ago, it had been unusually inflamed and painful, and presented typical features of the disorder.

The classical authority in surgery says that "the cure of these

encysted abscesses of the breast may be most conveniently effected by making a puncture into them, and then passing a seton across them in a perpendicular direction; the inflammation thus excited in the tumor will speedily lead to its being softened down, and eventually disappearing." The treatment which Mr. Coulson adopted in this case, and which he commonly employs with success, was of a milder character. Scott's ointment was applied to the breast on lint; strips of plaster, of an inch and a half in breadth, were then placed tightly around this dressing, and the whole carefully bandaged. Four days subsequently, Mr. Coulson caused the dressing to be removed and renewed. The improvement in the case was very marked, and the disease is fast progressing to a cure. —*Lancet*, Nov. 24, 1860.

Russian Civil Hospitals in 1858.—According to the report for 1858, just issued by the Russian Government, the entire number of persons received into these in 1858 amounted to 293,153, of which number 246,747 recovered, 24,583 died, and 21,823 remained under treatment; so that the mortality was about 83·85 per 1000. Inflammatory, rheumatic, gastric, and especially catarrhal fever occupied the first rank. No part of the Empire escaped the influenza, but nowhere did it exhibit marked malignity. The same observation may be made concerning ague, which, however, assumed a bad form in the St. Petersburg district. In several places Fowler's solution was found to be of efficacy, while the preparations of bark were of little service. Of typhus and typhoid there were 20,062 cases, with 15,556 recoveries and 3415 deaths. Cholera prevailed epidemically in some places, not quite half those attacked dying. Of dysentery there were 138·90 deaths to 1000 recoveries; and of acute exanthemata there were 71·14 deaths to 1000 recoveries. Croup prevailed epidemically in various places, 533 deaths occurring from among 1809 cases. There were 9648 patients suffering from tuberculosis with 4430 deaths, from scorbutus 3437 with 252 deaths, 28,952 from syphilis with 237 deaths. Of 115 persons bitten by animals with rabies 23 became affected with hydrophobia, all dying. The bite of the wolf has been found to be more dangerous than that of a dog. There were 2 cases of acute glanders in man. There were 933 major operations performed during the year, the patients recovering in 838 and dying in 95. Of these

248 were amputations of the large limbs, with 205 recoveries and 43 deaths; 24 disarticulations, with 3 deaths; 14 resections, 78 lithotomy operations, 90 extirpations of cancer, 49 cataract operations, 28 for phymosis and paraphymosis, 3 tenotomy operations, 9 herniotomies and 2 tracheotomies.—*Med. Times and Gaz.*, Dec. 1, 1860, from *Deutsche Klinik*, No. 40.

Spontaneous Explosion of Glass. By M. Donovan, Esq., Hon. Mem. Philadelphia College of Pharmacy.—Some phenomena have lately occurred which appear to merit attention, as they might have been attended with dangerous consequences. Dr. Hoffman states that a large bottle of chloride of lime, the glass stopper of which could not by any means be taken out, had lain for years undisturbed on a shelf in his laboratory, when, without any obvious cause, it exploded, breaking the bottle into small fragments, and dispersing them, along with the chloride, with violence to a distance in all directions. This explosion Dr. Hoffman attributed to a spontaneous decomposition of the chloride of lime, a substance not hitherto known to be capable of producing such an effect.

Some days since an explosion took place in the shop of a chemist in Colliergate, York. One of the large show-bottles which stood in the window suddenly burst with a report described as resembling a cannon; the plate-glass window was shattered, and the glass vessels were blown to atoms.

Three years ago the following occurred to myself. I had procured from London a four-ounce bottle of what professed to be iodide of sulphur; but as it did not in any respect resemble that substance, I set it aside without removing the stopper, which stuck fast. In a year after, wishing to convert the bottle to use, I attempted to remove the stopper, but could not. I then tried to effect my object by striking the side of the stopper with a piece of wood, in the manner commonly practiced. I had no sooner given the stopper the first stroke, and a gentle one it was, than an explosion as loud as a small pistol shot took place; the body of the bottle was shivered, some of it almost into dust; the room (a large one) was filled with a cloud of the yellowish powder which the bottle had contained; and three of my fingers were gashed in a manner

which gave me great pain; the cicatrices even to the present hour occasionally sting me.

I succeeded in collecting a sufficiency of this powder for examination. Its color was pale yellow; it was proved not to contain a particle of iodine; it burned, on a hot iron, entirely away, with the characteristic flame of sulphur. I could discover nothing in it but sulphur in the state of hydrate, or what is called *lac sulphuris*, and such I believed it to be.

I have more than once witnessed the spontaneous fracture of a glass vessel into curious zigzags, the parts still holding together. I attributed the occurrence to imperfect annealing, or to whatever the principle is that causes the explosion of Prince Rupert's drops. The explosion of my bottle seems inconsistent with the notion of a radical force acting from within, but agrees well with the supposition of some molecular repulsive agency between the particles of the glass which had been long constrained and overpowered by their cohesion, until the vibration of the stroke given to the stopper determined the balance of power. I am not sure that this explanation has much meaning in it, but I can suggest no other. Whatever may be the cause, it is probable that the explosion of the chemist's show-bottle was of the same kind. Such bottles generally contain merely water colored by metallic salts, or other nonfermentable substances. Perhaps the explosion of Dr. Hoffman's bottle may have occurred in the same manner; and perhaps the three cases may have been explosion of the glass, and not of the contents of the bottle. Be this as it may, we derive the caution to be on our guard when we have to do with bottles, the ground glass stoppers of which have been closely adhering for a length of time, and obstinately resist being removed.

Observations on Syphilis.—In an essay read before the Rutherford County Medical Society, May 3, 1860, Dr. L. M. Wasson, of Murfreesboro', Tenn., attempted to prove syphilis to be the parent of scrofula (*Nashville Journ. of Med. and Surg.*) But this assertion, although admitted in part by others, is loosely based upon the impaired vitality, prostration, and cachectic condition of the system, induced by syphilis, and resulting in the "lymphatic temperament, which is the temperament of scrofula." The system is thought to become inclined to the scrofulous diathesis, because every

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fibre of the economy can not but be affected by "blood vitiated with ingredients so incompatible with every tissue of the body," as the venereal virus. Supposing that to be true, as far as it goes, it does not follow as an undeniable fact, "syphilis does produce, in every particular, the scrofulous diathesis," nor that it is "a most powerful and frequent cause of scrofula."

In order to corroborate the assertion of Dr. Cullerier, that hereditary syphilis is always due to maternal influence, (*Mémoires de la Société de Chirurgie*, tom. iv., p. 230,) Dr. Notta has published a memoir containing a number of observations, which go to show, that the issue will be free from the disease when at the time of conception the mother was free from it, notwithstanding the father may have been affected either at the time or previously, but that syphilitic children will be the result where the mothers have been subjected to the influence of the virus previous to conception, while the father was then suffering or had passed through the disease. In registering these facts, we are not prepared to admit the conclusions drawn from them, preferring to wait for the result of a more ample experience.—*Arch. Gén. de Médec.*

Prof. Sigmund, of Vienna, finds the proto-iodide of mercury only applicable to the papular and pustular forms of syphilis, and even there it is slower in effect than other mercurial preparations. Its reputed peculiarity of not inducing salivation is groundless; even when combined with opium, it gives rise to diarrhœa, and in obstinate forms of the disease it is of little or no use, while in anemia it is positively injurious. It by no means deserves the preference given to it in the treatment of children, and admits only of further trial in some obstinate forms, combined with iodide of potassium, but not in subjects disposed to catarrh of the lungs, stomach or intestines.—*Wien Wochensehr.: Med. Times and Gaz.*

Prof. Hebra has given, in one of the late meetings of the Medical Society of Vienna, his experience since 1858 of the treatment of syphilis by syphilization. Taking the matter from a simple soft chancre, he continues the inoculation as long as pustules are formed, or until all the syphilitic symptoms have entirely disappeared. Patients, upon whom no more pustules are produced, even by repeated inoculations from different chancres, are pronounced "immune." The inoculations were made three times a week, commencing with four punctures in the side or upper arm and then in the thighs. The aggregate number of punctures reached from 7 to

604. The earliest immunity ceased after the nineteenth inoculation, or the forty-second day, with seventy-six punctures; the latest by 219 punctures after 150 days. The patients, with the exception of two, received no medicine, not even a warm bath, but were allowed nutritious food and walking at pleasure. The artificial pustules were covered with a piece of oiled linen: frequently it took from three to six weeks to heal them up. A few patients, in whom inoculation had not been pushed to immunity, were attacked again with syphilis. Out of twenty-four (three with primary chancres, nineteen with secondary syphilis, two with non-syphilitic lupus serpiginosus) fourteen had been dismissed, the rest remaining under treatment. The application of mercurial ointment in two cases did not influence the development and course of the artificial pustules. All patients made perfectly immune are permanently cured. They feel perfectly well during the inoculation, improve in appearance and gain in weight; by and by all syphilitic symptoms disappear. Parallel experiments, however, prove the decided superiority of mercurial treatment.— *Wien Wochenschr.: Ogle thorpe Med. and Surg. Journ.*

Against syphilitic chaps and fissures of the toes an ointment containing litharge, white precipitate, and a few drops of laudanum, has been used with marked success in many of the hospitals of Germany. The same ointment is recommended for the serpiginous and phagedenic ulcers which occasionally supervene upon vaccination in children of a scrofulous or syphilitic constitution. The process of cicatrization is practiced by bathing the sores with a decoction of hemlock and marsh-mallows.—*Med.-Chir. Review.*

Treatment of Epilepsy.—Dr. Fabre reports seven cases of confirmed and well-marked epilepsy, in which pills of the hydrocyanate of iron have effected cures. He alludes also to numerous cases in which the same substance has been successfully employed by Dr. Roux, of Brignolles, and adduces the testimony of others in support of the advantageous effect of this preparation, which has been employed since 1829 in chorea and other neuroses complicated with chlorosis.—*Revue de Malgaigne; Journ. Mat. Med.*

Dr. G. S. Bailey, a retired physician of Iowa, states in a letter to the editors of the last-named journal, that his only son, after having been treated six years for epilepsy with every remedy that

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medical skill could suggest, without success, was finally cured with the hydrocyanate of iron, by Prof. D. L. McGugin, of Keokuk. The formula employed corresponds with the one used by Dr. Treat (*Cincinnati Lancet and Observer, June*, 1860, p. 383): hydrocyanate of iron, one drachm; powder of valerian, two drachms; extract of Indian hemp, one drachm being originally added by McGugin. Make into one hundred and twenty pills. One of them is to be taken three times a day, gradually increased to four.

Dr. Max Maresk, physician of an establishment for the insane at Vienna, submitted some epileptic patients to the influence of atropine. Out of eight cases taken from the female department, three were completely cured, and the condition of the five others notably ameliorated. Ten other patients, four men and six women, were selected from the department of the incurable insane, for the same experiment. Eight of these experienced a marked diminution in the violence and frequency of their epileptic attacks, as well as in the acerbation of their physical trouble. One-fiftieth of a grain of atropine gave rise, in every case, to the phenomena habitually following the administration of this agent; the patients became habituated to them, although they never ceased during the entire treatment. In every case the pulse lost eight or twelve pulsations during the first hour after taking the remedy, but resumed its normal frequency so soon as the other phenomena manifested themselves. The atropine was administered in a solution of one grain in five hundred drops of rectified alcohol; five or ten drops of this constituting a dose, which is administered once daily, in the morning before breakfast. Coffee, tea and chocolate interfere with the action of the atropine. It is continued for sixty or ninety days, and then resumed after an interval of from thirty to forty-five days. It favors and augments menstruation, and but rarely gives rise to constipation, more frequently to diarrhœ, necessitating, when severe, suspension of its administration for some days. *L'Union Med.; N. O. Med. and Surg. Journal.*

Selinum palustre, in powder, effected a complete cure in the hands of Dr. Th. Herpin, in four cases of idiopathic, and partly of inherited epilepsy. He administered from one to four ounces during the week, divided in twenty-four doses, of which three or four were taken daily. According to Dr. Tagod (*Bouchardt's Annuaire de Therap.*) the root and herb of peucedanum austriacum are still more efficacious. He gave two grammes of the powder

three times daily.—*North Amer. Med.-Chir. Rev., from Bull. de Therap.*

Mr. E. Baines reports a case with the powdered water-plantain, alisma plantago, four grains twice daily, increased a grain every third day. But the root must be collected at the end of August. This deserves a more extensive trial.—*London Lancet.*

Consumption of Tobacco in France.—The consumption of tobacco in France increases in an immense proportion. In 1815 it was only 53,000,000 lbs., and in 1858, 173,000,000 lbs., having in that time more than tripled. In a period of 47 years, it produced to the Treasury a gross sum of 4,386,794,264 fr., and a net amount of 3,044,079,306 fr. The sale of tobacco, as is known, is a government monoply, and the gross receipts from it are set down in the budget of the present year at 183,000,000 fr. From that sum, however, must be deducted 15,424,000 fr. for salaries; 12,437,200 fr. for rent, buildings, wages to workmen, repairs, supplies of paper, envelops, salt, and casks; 211,000 fr. for indemnities to departments in which the plant is cultivated; 205,000 fr. for fees to experts; 43,009,000 fr. for purchase of foreign and native tobacco; and 96,933 fr. for extraordinary service; total, 57,501,533 fr.; thus leaving a balance of 125,498,467 fr. in the Treasury. The increase in the price of tobacco just imposed will raise the receipts, it is estimated, to about 220,000,000 fr.—*Lancet, November* 3, 1860.

Evil Effects resulting from the Use of the Ecraseur for the Removal of Hæmorrhoids.—M. Nelaton drew attention some time since, to the occasional occurrence of traumatic stricture of the rectum as a consequence of the use of the écraseur. In a clinical lecture last spring he noticed this drawback to the use of M. Chassaignac's favorite instrument, and said that many of the patients who had been operated on had had reason to regret the exchange of a bearable complaint for a veritable torment. M. Chassaignac, who is not the man to abandon a cause he has once declared a good one, at once set about a modification of his original plan, and now, instead of including the whole mass of the hæmorrhoidal tumor within the loop of his instrument, and removing it as if it were a polypoid growth, he contents himself with the excision

of the crown of the tumor, trusting to the subsequent inflammation and cicatricial contraction to effect the rest of the process of obliteration requisite for the accomplishment of the cure. This new method, however, does not give the patient the benefit of one of the great advantages attached to the use of the écraseur under ordinary circumstances—namely, the perfect immunity from hemorrhage, as proved by the occurrence at the Hôpital Laribossière of a death from the above cause after an operation for the extirpation of piles, although, as very justly observes one of the leading journals here, the *Journal of Practical Medicine and Surgery*, it has yet to be proved whether in the statistical reports of such operations, either by écraseur or other method, fatal terminations be not occasionally observed also. M. Chassaignac's error has hitherto undoubtedly consisted in too generous an excision of healthy tissue—a proceeding which has been followed by the formation of a large and progressively contracting cicatrix. The alarm has now been pretty widely given in France at least, and operators will for the future be more economical in their dealings with the mucous membrane of the rectum. If M. Chassaignac possess any imitators in England, it will be well for them to take a timely warning.—*Lancet*, Nov. 10, 1860.

On the Diseases of Printers.—*By Dr. van Holsbeek.*—Dr van Holsbeek having enumerated the diseases resulting from over work, from intemperance, want of cleanliness, vicious habits, protracted watching, &c., proceeds to speak of the morbid affections more specially belonging to the printer's art. Fissures of the lips, of varying depths, are of frequent occurrence; at other times tumors are developed on the inner surface of the same parts, which are nothing else than follicles whose excretory ducts are closed. These tumors sometimes inflame, become highly painful, rapidly ulcerate, and assume a cancerous appearance. Such affections of the lip are owing to the habit some compositors have of putting into their mouth the types still moist with the fluid which has served to wash them. Dyspepsia is frequent, as is diarrhœa; the latter is, however, of a transitory and mild nature. Among the most common affections are those of the respiratory passages, of which laryngitis and bronchitis are the principal; pleuritis is rare; pleuro-pneumonia is frequent and severe. These diseases are favored by the curved position which the printers are obliged to maintain during

their work, particularly when they correct on the forms, and still more by the night-work, by gas-light, by the dust and emanations in places often confined and badly ventilated. Nearly twenty-five per cent. of printers die of tuberculosis, either hereditary or acquired. Diseases of the heart prevail among the pressmen; hemorrhoids are rare; varices and varicose ulcers are of frequent occurrence; the compositors who correct on the form frequently suffer from cerebral congestions and hæmorrhage. Among nervous diseases we observe tremor of the hands, against which the author successfully employs the electric current. Saturnine colic and paralysis are rarer than formerly, an improvement due principally to the difference in the composition of the materials of which the type is made, to the precaution of cleaning it from dust, as well as frequently rubbing the boxes which contain it; lastly, to the care of the workmen, who no longer put the letters in their mouth. Hernia is common, particularly among the pressmen; in them we occasionally observe distortion of the joints of the fingers. Fissures and callosities form on the thumb and index finger of the right hand, on account of the roughness of the characters, particularly if they are new and damp with the matters with which they are polished; moreover, in consequence of the habit the printers have of washing themselves with alkaline water or bad soap. Amblyopia and myopia, so very prevalent among typographists, terminate the sketch drawn by the author of the diseases of this interesting class of artisans, with whom we are in daily contact, and whose intelligence and diligence we have constant reason to admire.—*Lo Sperimentale*, December, 1859, p. 560.

Regulations for Admission of Foreign Medicinal Substances into Russia.—The *St. Petersburg Journal* contains a decree of the Medical Council of Russia upon this matter. Russia has for a number of years been the center and privileged territory of inventors of all kinds, and from every country. As long as more or less new or useful inventions in industry, commerce, or the arts were concerned, the authorities have only interfered for the granting the patent, leaving the public as the sole judge of the merit of the invention. But when dangerous products are concerned, such as chemical or pharmaceutical substances, which by their very nature escape all appreciation by the public, competent

authority, whose duty it is to watch over the health of all, ought to intervene in order to protect the purchasers against error and charlatanism. The number of new medicines prepared abroad and offered to the public through prospectuses and advertisements, becomes every day greater, and demands for permission to import new remedies flow in from all parts of Europe. If the Medical Council were to listen to all these inventors of secret medicines indiscriminately, and reply to the voluminous memoirs which accompany their samples, time would not suffice; it would, in the examination of pretended discoveries, the compositions of which are usually based on neither science or common sense, but on interested calculations, lose precious time which should be devoted to serious questions. To avoid such loss, and to prevent foreign inventors of secret remedies, undergoing needless trouble and expense, the Council publishes an extract from the Russian code of what relates to medicinal substances brought from abroad. Every inventor must transmit to the Medical Council a specimen of his invention, accompanied by a note indicating its ingredients. The Council causes an analysis to be made, and if it recognizes the substance as likely to be useful, it regulates its employment, and fixes the price. If the proposed remedy is of really a serious character, so that it is proved to be better than similar ones in use, or while of equal efficacy with them it can be more easily employed and sold cheaper, the Council may accord to the inventor the privilege of an exclusive sale for a certain number of years at the price determined on—the secret of the composition being revealed at the end of such period. Moreover, the Medical Council will not proceed to the examination of any of these substances, unless they have been already approved of by the medical bodies of the country to which the inventor belongs, if their employment is dangerous, if their preparation implies costly apparatus or special qualification, and if they will not keep well after they have been prepared.—*Med. Times and Gaz.* from *Union Med.*, No. 135.

Obituary Record.—Died, in Dublin, on the 1st of December, of apoplexy, after only three hours' illness, Sir Henry Marsh, Bart, M. D., in the 70th year of his age. Dr. Marsh has during the last thirty years occupied the foremost place among the medical practitioners of Dublin.

Spontaneous Pelvic Abscess.—It is seldom indeed that an abscess presents itself in either the pelvis or the abdomen without some assignable cause. When occurring in the former, it is usually from the effects of parturition; and sometimes an abscess may arise in some part of the abdomen or pelvis as the result of vertebral disease. At the present time there is a female aged fifty-five years, in Mary ward at St. Bartholomew's Hospital, who was admitted on the 21st of September, under Dr. Farre's care, with pain in the right flank, which had been present for about ten months, and for which she could assign no cause. Her last child was born eighteen years ago, and she had a miscarriage ten years since; the catamenia have ceased for some years. She resides in the City road, and has been in the habit of lifting a heavy pail, and now and then has felt a "rick in her side." There was no appreciable swelling on admission, but there was pain, with rigors and quick pulse. The bowels were always regular. Fluctuation was perceptible, and in a few days an abscess pointed in three places; it was opened above Poupart's ligament, and three cupfulls of matter were let out. This was followed by considerable relief, and when we last saw her she was improving under the use of good diet, wine, and quinine, and her pulse was 120. It seems most probable that the suppuration commenced in the pelvis, whatever the true cause of it may have been, but there is no evidence to prove that it arose from injury; nor from the cæcum, because there was no induration around that part of the alimentary canal, and the bowels have always been regular.—*Lancet*, Nov. 24, 1860.

Removal of a Fibro-Plastic Tumour from the Parotid Region.—An interesting case of tumour in the region of the parotid gland was submitted to the operation of removal at St George's Hospital, on the 8th inst., by Mr. Prescott Hewitt. The history is that of non-malignancy. The patient is a healthy-looking woman, twenty-four years of age, a lady's maid, who has had a tumonr in the left side of the neck, extending under and behind the angle and ramus of the jaw in the parotid space, for a period of twenty years. She never suffered any inconvenience from it, but it caused some deformity. About six months back she consulted a surgeon about it, who prescribed a mixture of bark and iodide of potassium, which she took whilst travelling in Scotland

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with her mistress. At the same time she thought she might loosen the growth to expedite absorption, and every day worked away at it. This manipulation had the affect of increasing the vitality of the tumour, and in a very short time it was fully one third larger than it had been for so many years. On her return to town she became a patient in St. George's Hospital, and the morbid growth was removed under chloroform. For the purpose of avoiding vessels and nerves, Mr. Hewitt made a vertical incision rather at the back of the tumour, and then another posteriorly at right angles, giving the whole a T shape; this enabled him to get behind it, and after a little cautious dissection the mass readily turned out, and resembled a potato in its form and smoothness. A branch of the facial nerve, which covered the tumour, was carefully detached and held on one side by Mr. Pollock with a hook; no nerve therefore was wounded, nor even any small vessels—a circumstance somewhat unusual in operations in this situation. On section, the nature of the tumour was found to be fibro-plastic, with a few cartilaginous masses imbedded in it, thus forming a conglomeration of the enchondromatous and fibro-plastic. The parotid gland in the present instance was normal; a part of it overlapped the tumour, and it was dissected away from it. We are glad to say that the patient is doing well, and will probably make a good recovery.—*Lancet*, Nov. 24, 1850.

Dupuytren on Tobacco Smoking.—"I cannot understand the progress of this filthy custom among educated people. It is, indeed, incredible that a man of liberal education should consent thus deliberately to debase his intellect; that a man, who has enjoyed the pleasures of literary and scientific information, should prefer to the sublime pleasures of the mind the ignoble pleasure of rendering himself disgusting to all about him."—*Med. Times and Gazette, Nov.* 24, 1860.

University of Edinburgh.—The increase in the number of students in the University, which was marked last year, continues this session. We understand that Lord John Russell's eldest son has this year matriculated in the University, in which his father was a student fifty years ago.—*Med. Times and Gaz.*, Nov. 17.